AMERICAN ARTISAN

ZARM AIR HEATING • SHEET METAL ONTRACTING • AIR CONDITIONING

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OLD INSTALLATIONS PROVE THE LONG LIFE OF TONCAN IRON

Sheet metal contractors have been hearing about the merits of Toncan Iron for a long time—about its easy working qualities—its resistance to rust—about the laboratory acid test that quickly showed the superiority of this modern alloy of refined iron, copper and molybdenum.

Many users of sheet metal have been convinced of the outstanding quality of Toncan Iron by this test. Now we present proof that actual service tests bear out laboratory findings.

The Paine Lumber Co., Oshkosh, Wis., covered several of its buildings with Toncan Iron roofing and siding in 1909. After 24 years exposure the metal evidences no sign of deterioration. Other buildings erected in 1922 are also just as good as new. The Toncan Iron has never been painted.

The Fluor Corp., Ltd., Los Angeles, Calif., writes—"We have been using Toncan Iron for a number of years and have had very good results. Corrugated Toncan Sheets have been adopted as standard on our oil field buildings. We find after a four year test that Toncan resists corrosion and we are well satisfied."

In Dallas, Tex.—"The Fair Park Bldg. was covered with Toncan Iron in 1926 and is still in excellent condition, while the live stock arena built in 1928 and covered with a cheaper sheet metal, already has holes rusted completely through."

You will find dozens of similar actual service records in "The Path to Permanence." Every sheet metal contractor should read this book. Sent upon request.

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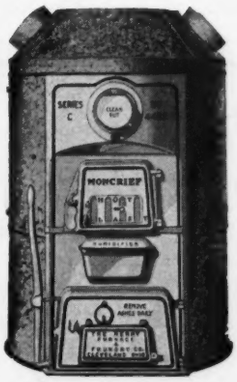
TONCAN
COPPER
MO-LYB-DEN-UM
IRON

REPUBLIC STEEL CORPORATION

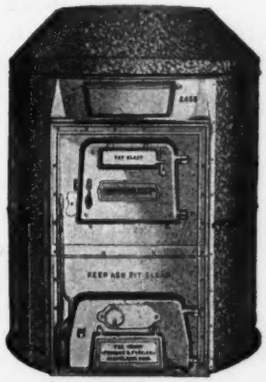
GENERAL OFFICES: YOUNGSTOWN, OHIO

WHO *has a better chance than a* MONCRIEF DEALER?



SERIES "C" CAST FURNACES

Up-to-date in every particular. Roomy, heavy, one-piece castings, smoothly finished. Oversize casing with solid cast front. A popular seller.



SERIES "S" STEEL FURNACES

Extra heavy and extra well made. Shell both riveted and welded. Seldom you will find a steel furnace equal to the Series "S."

MONCRIEF ARISTOCRAT

Aluminum finish with black trimmings. Makes a classy looking job. For either Series "S" or Series "C" furnace.

SERIES "B" GAS FURNACE

A quality gas furnace that you can sell at a moderate price. Has same efficient burners as Moncrief Air Conditioning Gas Furnace.

CONSIDER how well situated you are for building a growing, paying business when you handle the Moncrief line.

You always have just the furnace for any job and give big value, too.

For the Moncrief line is kept progressively up-to-date in design, and the Moncrief foundry is second to none in the whole country in equipment specially arranged for furnace production.

[*Moncrief Pipe and Fittings: Everything used on a warm air heating job*]

Our branches and distributors carry complete stocks for prompt shipment

NRA MEMBER — WE DO OUR PART

The Henry Furnace & Foundry Co.
3471 E. 49th St., Cleveland, Ohio

When TIME is MONEY

Every minute counts when the season is on. Dealers can erect Moncrief furnaces fast. The contact edges of every Moncrief are ground straight and smooth, and the sections fitted, assembled and shipped as a unit. No time is lost in fitting on the job.

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in
Gravity Warm Air Heating
Forced Warm Air Heating
Sheet Metal Contracting
Air Conditioning
Ventilating
Roofing

AMERICAN ARTISAN

With which is merged

FURNACES and SHEET METALS AND Warm-Air Heating

Vol. 102, No. 9 September, 1933 Founded 1880

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CONTENTS

More than 7,000 copies of this issue are being distributed.

There must be many Prospects for durable Copper in your territory, too

ON REPAIRING and remodeling work, many contractors have done a good volume of sheet metal business during recent months. And at a satisfactory profit, too . . . by offering Copper as the most economical metal to use.

Among your customers and the prospects in your territory, there must be many who should make needed repairs now. Most of them will pay a fair price for Copper when they appreciate its advantages . . . and when they realize how little more than rustable metal it really costs.

Leading sheet metal supply houses carry Anaconda Copper . . . the accepted standard of sheet metal quality . . . in sheets, rolls and Economy strips, and copper gutters, leaders, elbows and shoes trademarked ANACONDA. Because it is backed by the industry's best known name, Anaconda Copper is easier to sell.

THE AMERICAN BRASS COMPANY
Waterbury, Connecticut

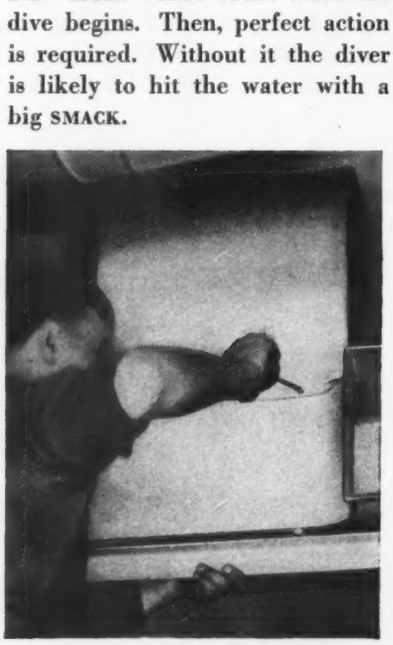
ANACONDA
from mine to consumer

ANACONDA COPPER

IT TAKES Perfect Action

. . . to make a perfect swan dive— or to make savings on sheet metal assemblies

A BATHING SUIT will make anybody "look" like a diver. But "looks" don't count when the dive begins. Then, perfect action is required. Without it the diver is likely to hit the water with a big SMACK.



It takes perfect action to make savings on sheet metal assemblies, too. Trouble in using screws can cause a loss instead of a saving of time and labor. That's why most sheet metal workers use only genuine Sheet Metal Screws . . . made by Parker-Kalon.

There's more to a genuine Sheet Metal Screw than "looks". It has the unseen qualities that insure perfect action which invariably results in savings. Specify the full name Parker-Kalon Hardened Self-tapping Sheet Metal Screws. They *always* go in easily and quickly . . . form a perfect strong-holding thread in the metal . . . draw up tight without breaking. Low prices make it unnecessary to take chances with imitations.

PARKER-KALON CORPORATION
190 VARICK ST. NEW YORK

ITS PERFECT ACTION
brings savings in making fastenings

GENUINE PARKER-KALON SHEET METAL SCREWS *ALWAYS HOLD* . . . . because the threads run full diameter right up to the head.

ALWAYS GO IN EASILY . . . . . because the threads are (1) designed with an expert knowledge of the work they must perform (2) held to a high degree of accuracy and uniformity.

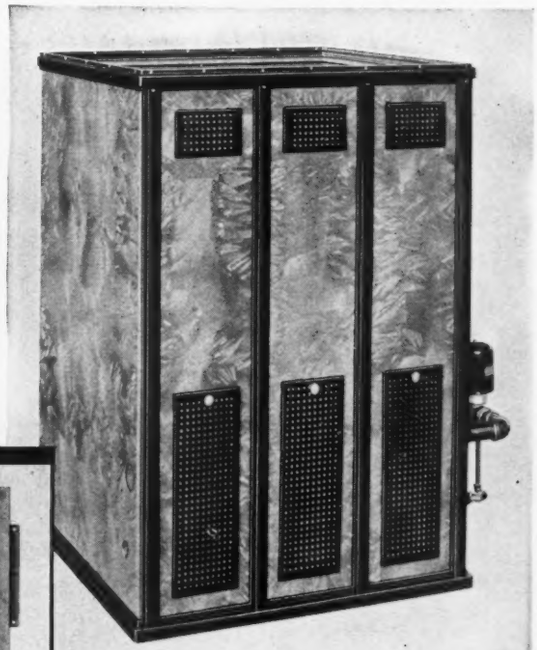
THREADS DON'T STRIP— HEADS DON'T TWIST OFF . . . . because they are made from a high grade steel wire of special analysis, and are scientifically hardened by a process developed from 20 years experience in the manufacture of Self-tapping Screws.

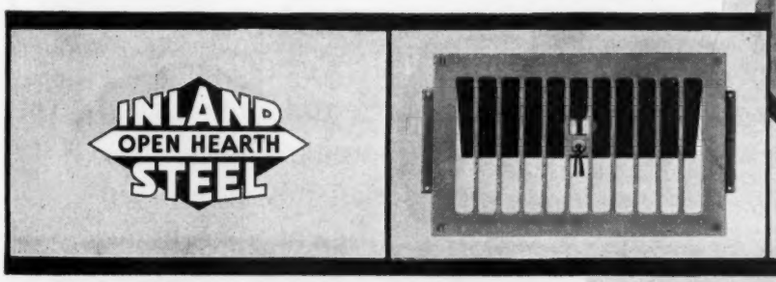
PARKER-KALON
HARDENED TYPE A SELF-TAPPING
Sheet Metal Screws
PATENTED — No. 1469148

Remember, there's only one Sheet Metal Screw, PARKER-KALON
Imitations give imitation results

For Air Conditioning Equipment

...also... Inland Steel Is Selected





MANY important heating, ventilating, and air conditioning installations—important for size, for the advances they mark—are of Inland Steel. And many of the leading individual units of equipment making up these installations are of Inland Steel. For the quality, the wide selection of characteristics to meet any requirement exactly, makes Inland Steel the logical source of supply for manufacturer and for contractor alike.

In equipment, raw materials, and experience Inland is "Able..." The more difficult the requirement, the more valuable Inland equipment, control of raw material quality, and experience can be to you. INLAND STEEL COMPANY, 38 S. Dearborn St., Chicago, Ill.

Produced of Inland Steel by the L. J. Mueller Furnace Company, Milwaukee. At top: Gas Era furnace. *At left:* Climator register. *Below:* Climator fan, air washer and filter, adapted for addition of refrigeration unit when desired.

INLAND STEEL

ABLE SERVANT OF THE CENTRAL WEST

Sheets Strip Plates Rails Track Accessories
Bands Structurals Piling Bars Rivets Billets

MOULDING A SPECIAL PHASE OF PUBLIC OPINION IN THE FIELD OF COMMERCE, WHERE THE AMERICAN NATION HAS SHOWN MOST CLEARLY ITS PECULIAR GENIUS, IS

The American Business Paper

THE development of such a great mercantile organization as America has, depends upon the directed and co-ordinated action of hundreds of thousands of business units scattered all over the country. Mass production has demanded the creation of quick and wide-spread acceptance, not only of new products but of the merchandising ideas developed at the same time to secure volume consumer purchases. In this task the American Business Paper serves as an efficient instrument, shortening the gap between production and sale. It places in the hands of the dealer the information concerning the product, and its merchandising; and before the technical man the necessary installation and performance data.

"DEALER ACCEPTANCE," SAYS A GREAT ADVERTISING AUTHORITY, "IS AS NECESSARY TO SUCCESSFUL MERCHANDISING AS CONSUMER ACCEPTANCE."

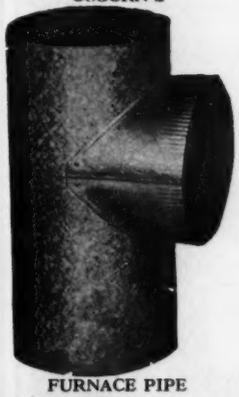
THIRTY years ago a new product was laboriously introduced to an industry. Men had to travel immense distances to secure strategic distribution and older executives still "yarn" about such trips which kept them from home for months at a time. Now the acceptance which gave these older men such trouble to secure is built over night through the medium of the Business Paper and inquiries and orders may be reaching the manufacturer before he has done admiring the first sample of his new product.

The mobilization of public opinion, whether generally or in particular instances, has been developed to a high degree in America. In industry it has been the indispensable aid in galvanizing the whole chain of distribution into swift merchandising activity.

A FEW OF OUR HEATING, VENTILATING AND AIR CLEANING SPECIALTIES

WARM AIR FURNACE WITH DUSTOP CASING

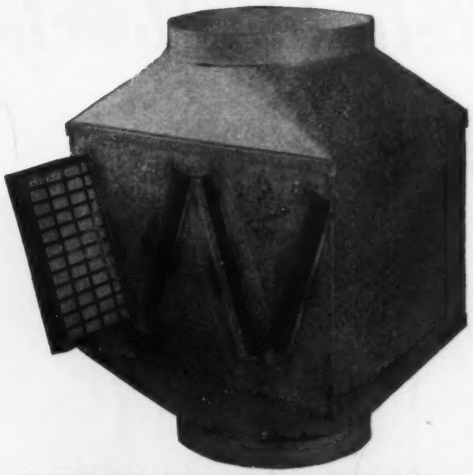
OSBORN'S



FURNACE PIPE

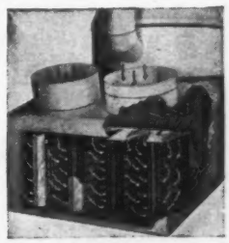
AND FITTINGS

MADE IN BOTH GALVANIZED STEEL AND ENDURO 18-8 STAINLESS STEEL



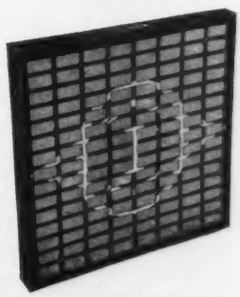
OWENS-ILLINOIS AIR FILTER CASING
Showing how Dustop Filter is inserted in an enlargement of the cold air return duct.

OUR GOLDEN STAR FURNACE AND OTHER STOCK ITEMS



ARRANGEMENT OF DUSTOP FILTERS IN CASING

DUSTOP
Stops Dust



DUSTOP AIR FILTER
THE CHANGEABLE — INEXPENSIVE—GLASS WOOL—UNIT FOR THE OWENS-ILLINOIS GLASS CO.'S SYSTEM

PUT UP IN 1—5 & 10 LB. CANS
25 LB. PAILS—100 LB. KEGS

HIGH EFFICIENCY TRADE ILG MARK VENTILATING MACHINERY

ELECTRIC FANS AND BLOWERS

THE J. M. & L. A.
OSBORN Co
MANUFACTURERS · DISTRIBUTORS
DETROIT·CLEVELAND·BUFFALO
"Everything Used in Sheet Metal Work"

"NOW MORE THAN EVER *You Need Reliable Merchandise . . . and Selling* HELP"

says

H. T. RICHARDSON

"The next few months promise to be the *most active period* that heating and piping contractors have known for several seasons. What are you planning to do about it?

"NOW MORE THAN EVER you need reliable merchandise—like this sturdy Richardson 'Perfect' Warm Air Heater. You need whole-hearted cooperation of a manufacturer — such as we are ready and willing to offer. And you need real SELLING HELP—of the honest, proven kind that wins when the going is hardest.

"That's what we want you to accept from us. Give us the go-signal!"

Mr. Richardson, our Vice-President, spends much of his time calling on dealers in every territory — studying the various merchandising problems of heating and piping contractors with one thought in mind: more profit for the dealer.

Follow his advice to the letter! Our Talking Portfolio helps you to interest a prospect—quickly. Our perfected Time Payment Plan makes selling easier — and, more important, gives you your profit *in cash* without waiting or worrying about collections! These and other selling helps, booklets, leaflets, advertising cuts and mats, are available to you in one *organized plan* — easy to use! Just drop us a line today.

NRA MEMBER U.S. WE DO OUR PART

RICHARDSON & BOYNTON Co.

244 MADISON AVE., NEW YORK, N. Y. — *Offices in Principal Cities*

Westinghouse Phos-Copper Alloy was used in the dome construction of the Adler Planetarium, Chicago, Ill.

THERE'S PROFIT IN COPPER JOINTS

—WHEN YOU USE THIS WELDING TEAM

EASY, low-cost, quality fabrication of copper and copper-base alloys, is a simple matter with these three exclusive Westinghouse arc-welding tools:

Self-fluxing Phos-Copper Alloy

A welding and brazing material of extremely high fluidity. Produces joints of great strength, at a cost far below silver solder and other silver alloy materials. Requiring no flux, it is easier to apply . . . and is self-cleaning.

New A-C. Welding Torch

A carbon electrode holder that's easy to use. Because of its concentrated, easily-controlled arc heat, it produces a uniform flow of metal . . . assuring neat welds in metals of even "cigarette-paper" thinness.

The FlexArc A-C. Sheet Welder

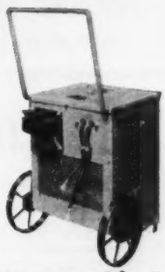
The only successful arc welder for thin-gauge copper, alloys, aluminum and stainless steel. It operates from the ordinary power circuit, and consumes less than 15 cents worth of power an hour. One man can wheel it about with ease.

Westinghouse

Quality workmanship guarantees every Westinghouse product

Westinghouse Phos-Copper Alloy is self-fluxing and self-cleaning and its cost is low.

The New Westinghouse A-C. Welding Torch permits easy and accurate control of arc heat for welding thin-gauge materials.



The 100-ampere FlexArc A-C. Sheet Welder assures a stable, flexible arc at extremely low current values for speedy and easy welding.

Let us show you the advantages of these copper-fabricating tools in your plant, without obligation. Just mail the coupon.

SEND FOR INFORMATION

Westinghouse Electric & Manufacturing Company
Room 2-N—East Pittsburgh, Pa.

Gentlemen: I am interested in Phos-Copper Alloy, the new A-C. Welding Torch and the FlexArc A-C. Welder. Please write me concerning a free demonstration.

Name .....
Company .....
Address.....T 79603
City.....*State*.....AA 9-33

VOLUME 102 **AMERICAN ARTISAN** NUMBER 9

WARM AIR HEATING • SHEET METAL CONTRACTING • AIR CONDITIONING

Our NRA Code

Readers will find in this issue the tentative code of the National Association of Sheet Metal Contractors and the latest reports on progress to date on code formulation by local, state and national organizations. These reports have been gathered from every available source.

These reports indicate that the formation of a code of fair practice for the sheet metal, roofing, warm air heating and allied industries has furnished a real incentive for contractors in all parts of the country to get together and work for one common purpose.

The progress made to date proves real accomplishment can be obtained when some common purpose motivates all men of an industry. There is a lesson in this progress. For years associations of all kinds and sizes have been trying to keep their heads above water. Many of them have failed to survive. The reasons given are many, but the real reason can be stated in the words of one of the real leaders in the industry—"You can't hope to keep men in an association unless you can show them and help them make a profit from their operations."

The significance of that statement is widespread. Making money means teaching costs and estimating. Making money means control of the price cutters. Making money means keeping out the poor operators and knitting the others into a compact group. And so forth.

No industry has been able to do these things and sidestep the government. Now an industry can actually get government sanction. If our associations cannot go forward to bigger and better things under this impetus, then associations are failures.

◆

Remodeling Our Future

For many weeks our field representatives and our contacts with readers have been asking this question—"From what sources do you expect to get your next winter's heating work." Our reason for asking, of course, is the reason of any good business institution. We aim to serve our readers to the best of our ability and the kind of work they expect to do is the kind of work we want to discuss on our pages.

The results of this quiet survey are announced on one of the pages of this issue. In the announcement we have set forth the general scope of the situation from your standpoint and our suggested helping program. Perhaps you will have some suggestions to add to ours. Perhaps you will have in mind things we ought to do to help you carry on to success and profit.

If so, you have only to write us.

◆

The Road to Profit

We have stated many times in the last three years that more and better selling is one thing the sheet metal, roofing and warm air heating contractor must make up his mind to learn and apply. And at the risk of once more dragging this idea out into the open, we reiterate we need to learn to sell.

In the last three years, while business has been slowly sliding down hill, selling was practically the only thing which kept some firms going while neighbors were closing up shop.

Some seem to think that now because of the upturn in business and the general betterment in conditions the need for selling will recede and that those who have kept open so far can now sit down and wait for better days to come.

No thought could be farther from the truth. Consider for a moment what is likely to happen in your community and then try to figure out how you can avoid having to sell.

As business gets better; as wages and incomes rise; as money begins to circulate; as merchants begin to buy; as people's fear recedes and things long needed or desired are once more looked upon with an eye to purchase, we will have more widespread buying.

But buying does not mean that each one of us is going to get his share just because people are spending money. In your community there are doubtless hundreds or thousands of people who want and will buy. But the things these people want are many and varied. Your service, your commodities, must compete with dozens of products and services which people much prefer to have.

The things we have to offer haven't much appeal. The possession of a furnace or a good roof; neat, well designed rain carrying equipment do not give the public the same thrill as 100 horse power under their foot.

The list might be extended indefinitely, but the lesson is obvious. People are going to begin to buy, but the things we have to sell must compete with dozens of commodities, luxuries, necessities, that the public buys more willingly. It will be up to us, therefore, to become such good salesmen that the real value of our services, the comfort, convenience, satisfaction, economy of the things we offer can be made appealing by intelligent sales effort.

Code of Fair Competition

for the

Sheet Metal and Roofing Contracting Industry

Prepared by the

National Association of Sheet Metal Contractors of the United States, Inc.

Article I.

Purpose

This Code is set up for the purpose of increasing employment, establishing maximum hours per week and fair minimum wage rates per hour, eliminating unfair competitive practices, with a view of rehabilitating the sheet metal and roofing contracting industry and enabling it to do its part toward establishing that balance of industries which is necessary to the restoration and maintenance of the highest practical degree of public welfare.

It is the declared purpose of the sheet metal and roofing contracting industry and adherents to this Code to use every effort to effectuate the policy of Title I of the National Industrial Recovery Act during the period of emergency, and, insofar as may be practicable, to bring the wage rates within the sheet metal and roofing contracting industry to such levels as are necessary for the maintenance of the highest practicable standard of living; to restore the income of enterprises within the industry to levels which will make possible the payment of such wages and avoid the further depletion and destruction of capital assets; and from time to time to revise the rates of wages in such manner as will currently reflect an equitable adjustment to the cost of living.

Definitions—The term "sheet metal and roofing contracting industry" as used herein is defined to mean the individuals, co-partnerships and corporations engaged in (a) the fabricating and erecting of sheet metal work and the application of roofing materials of whatever kind, except wood shingles, as required in the building construction industry; (b) the installing of warm air heating systems and air conditioning systems; (c) the installing of heating and ventilating systems; (d) the fabricating and installing of blow pipe and exhaust systems and other sheet metal products and equipment required by industrial plants and (e) such other sheet metal products as are required for domestic and agricultural use.

The term "contractor" as used herein is defined to mean individuals, co-partnerships or corporations engaged in any one or more branches of the industry above enumerated, and (a) being generally qualified by technical training, and/or experience in the industry; (b) having an established place of business and (c) being an employer of labor.

A "Sheet Metal Contractor" under the terms of this Code shall be an individual, co-partnership or corporation engaged in the fabricating and installing of sheet metal products of whatever kind, having an established place of business and the necessary machines, tools and equipment for performing the operations in which he specializes.

He cannot, at the same time, be both a sheet metal contractor and a journeyman sheet metal worker, nor can he be a mere broker taking orders for sheet metal work and passing them on to a contractor for a commission.

A "Roofing Contractor" under the terms of this Code shall be an individual, co-partnership or corporation engaged in applying to roofs any roofing material of whatever kind except wood shingles. He shall be an applicator, and not a manufacturer of roofing or roofing materials, and shall have an established place of business and the necessary tools and equipment for laying the types of roofs in which he specializes; and should have a reputation for knowledge and reliability that entitles him to the confidence of the public.

He cannot be, at the same time, both a manufacturer of roofing or roofing materials and a roofing contractor, nor can he be both a journeyman roofer and a contractor. He must be engaged either as one or the other. Nor can he be a mere broker who takes orders for roofs and passes them on to a roofing contractor for a commission.

So many requests for information on code formulation have been received that we have obtained permission to publish the code being prepared by the National Association of Sheet Metal Contractors.

It should be understood that this code has not been submitted to Washington; in fact, late word from Washington indicates that considerable revision will be necessary and some sections may be rewritten.

The code does, however, show the many ramifications which must be covered and emphasises the importance of mutual effort if these important problems of fair competition are to have proper hearing in Washington.

Article II.

Participation

Participation in this Code, and any subsequent revision of or addition to the Code, shall be extended to any person, co-partnership, or corporation engaged in any one or more of the branches of the sheet metal and roofing contracting industry. All such concerns shall bear their proportionate share of the expense incident to initiation, securing of approval and administration of this Code of Fair Competition. Dues shall be paid into the Treasury of the National Association of Sheet Metal Contractors of the United States, Inc., or to the respective regional, state or local associations charged with the administration of the Code in the division in which said association is located.

Expenses incurred by the Emergency National Committee of the sheet metal and roofing contracting industry, hereinafter described, in the performance of the administrative duties shall be equitably distributed among the affiliated regional, state and local associations sponsoring the Code, together with the National Association of Sheet Metal Contractors of the United States, Inc., and all participants of the Code, regardless of membership in any one or more organizations.

Article III.

Divisions of the Industry

A. Powers

For the purpose of the administration of this Code the sheet metal and roofing contracting industry shall be divided into divisions as set forth below. Each division shall designate or establish its own administrative agency. Each such division shall be independent and self governing in respect of all conditions and problems relating exclusively to the said division. Proposals in respect of matters affecting more than one division may be initiated by any division, and shall be submitted for consideration to the Emergency National Committee of the sheet metal and roofing contracting industry, hereinafter described, and its determination shall be binding upon said division and all other divisions affected thereby.

B. Names of Divisions

Regional, State and Local Associations are hereby established as divi-

sions as given in Schedule A attached hereto.

Other regional, state and local associations now organized, or to be organized, may be admitted to membership in the National Association of Sheet Metal Contractors of the United States, Inc. Other allied associations may cooperate in administering the provisions of this Code if they make application to the Emergency National Committee and give evidence of subscribing to the provisions of this Code, and assume their part of the expenses incurred in preparing and administering the Code.

C. Executive Committee for Divisions

Each of the above divisions, and any others which may subsequently be formed within the sheet metal and roofing contracting industry, shall set up an Executive Committee for the purpose of administering the provisions of the Code, to secure adherence thereto, to hear and adjust complaints, to consider proposals for amendments thereof and exceptions thereto, and otherwise to carry out within the division the purposes of the National Industrial Recovery Act as set forth in this Code.

If a division, as named above, does not concur in the submittal of this Code; or if, at any time thereafter, a division fails to perform its obligations as provided hereunder, the Emergency National Committee of the sheet metal and roofing contracting industry, hereinafter described, is hereby empowered to adopt a Code for the division and may provide for the administration of that Code as if said Emergency National Committee were the Executive of the division concerned.

Article IV.

Division Regulations

A. Labor Code

Each of the above divisions, and any others which may subsequently be formed, shall promptly undertake the formulation of a labor code.

The labor code established by the said division, upon approval of the Emergency National Committee of the sheet metal and roofing contracting industry, shall be binding upon all individuals, co-partnerships or corporations operating in such division. The labor code of each division shall contain the following provisions:

(a) Employees in the sheet metal and roofing contracting industry shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organizations or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection.

(b) No employee in the sheet metal and roofing contracting industry, and no one seeking employment therein, shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing.

(c) Employers of labor in the sheet metal and roofing contracting industry agree to comply with the maximum hours of labor, minimum rates of pay, and other working conditions approved or prescribed by the President.

(d) The classification of labor in the sheet metal and roofing contracting industry is as follows:

Journeymen sheet metal workers and tinsmiths
Apprentices
Helpers
Welders (oxy-acetylene and electric)
Roofers
Roofers' Helpers
Common Labor
Truck Drivers

(e) Maximum hours for each class of labor shall be 40 hours per week, on an eight-hour day basis, except members of the supervisory staff, and truck drivers when required to make long hauls.

Overtime work may be permitted only on emergency jobs such as breakdown of equipment in industrial plants which cannot be repaired while plant is in operation, or when delay in repairs will result in lost time of workers, and emergency repairs to roofs or skylights when delay in making repairs may result in damage to building or contents. The owner, architect or engineer shall certify to the contractor the necessity for such emergency work.

Overtime shall be paid for at one and one-half times the regular rate of wages.

(f) Minimum wages for each class of labor shall be established between employers and employees of each division.

Minimum wage rates established by Regional, State and Local Associations are submitted as follows:

The maximum wage rates per hour are not inserted in this copy, but after careful study of wage rates reported on questionnaires returned, and the rates given in the Codes prepared by the A. G. C. and the National Building Trades Employers Association, the Code Committee recommends the approval of the following minimum rates:

Journeymen ..... *.85 cents*
Apprentices ..... *.25 cents*
Helpers ..... *.45 cents*
Welders ..... *.85 cents*
Roofers ..... *.85 cents*
Roofers' Helpers ..... *.45 cents*
Common Labor ..... *.45 cents*
Truck Drivers ..... *.45 cents*

Submitted—Louis Luckhardt, Wm. E. Feiten, M. F. Liebermann, Code Committee.

(g) In divisions where wage agreements exist between organizations of employers and labor, the wage rate so established shall continue in effect until changed by mutual agreement.

(h) Minimum rates of pay for workers on piece work or contract basis shall be equal in fact to the minimum hourly rates of the industry.

(i) Whenever a contractor himself does work, "with the tools of the trade," he shall not fail to figure the cost of such labor on at least the minimum wage rate of a journeyman.

(j) No employer in the sheet metal and roofing contracting industry shall employ any persons under 18 years of age, excepting apprentices who must be at least 16 years old.

(k) Employment of sons, or any other relatives, shall be on exactly the same terms and subject to the same limitations as the employment of non-related employees.

(l) Special attention shall be given to the sanitary conditions of the shop, or factory, and to the proper guarding of machinery in order to provide healthful and safe working conditions for the employees.

B. Cost Codes

It being generally recognized that the kind of competition generally designated as "cut-throat" is destructive of public opinion and incompatible with the welfare of the public, of labor and of the employer, there shall be established under this Code of Fair Competition a method of pricing as herein set forth:

(a) It shall be recognized that in its conduct and operation every business carries an inescapable burden of expense that is usually understood and designated as Overhead.

(b) It shall be recognized that Overhead is always a true and inseparable part of the cost of any work, operation or transaction and is not to be omitted in the figuring of such cost.

(c) It shall be recognized as an essential of fair competition that every estimate, proposal, quotation or other tender of a figure for any work, contract or order, whether written or verbal, shall be based upon a computation which shall always include actual or otherwise honestly established figures for (1) Cost of Material, (2) Cost of Labor, (3) Cost of Overhead and (4), because no business can continue to render service without profit, a reasonable profit should be added to these items.

(d) The cost of material shall be based upon current market quotations at the time of submitting the estimate, proposal or quotation; cost of labor shall be based upon the actual wage rate established for the contractor concerned, not less, however, than the minimum wages specified in this Code. Cost of Overhead shall be based upon a factor legitimately established out of the actual, provable experience of the contractor concerned. It is recommended that Overhead Expense Form 20, approved by the National Association of Sheet Metal Contractors of the United States, Inc., be used to determine the factor for Overhead.

(e) The contractor's salary, in addition to pay as mechanic when working as such, shall be recognized and charged in the books of account as an item of Overhead. When any contractor operates his business at and from his residence, he shall charge into his books of account, as an item of Overhead, a rental for such accommodation of his business that would be equal to the reasonable rental he would have to pay elsewhere, unless by provable charges for taxes, upkeep, etc., he can show that he is properly including a legitimate charge in his Overhead. It shall be an unfair method of competition for any contractor to sell below reasonable cost.

(f) It shall be a violation of this Code, under the provisions of the National Industrial Recovery Act, to attempt by any subterfuge to avoid scrupulous observance and full operation of these stipulations and the obvi-

ous spirit and intent of this Article (IV) of this Code.

C. Keeping of Accounts and Records

(a) As the only possible, practical means for obtaining the requisite facts as a guide for the proper performance of the duties and obligations prescribed by this Code, every contractor, or employer operating under its provisions shall be required to keep such books of account as will accurately provide all the essential records and facts of business done and making possible at least quarterly examination and reports.

(b) There shall be no restriction as to the exact type or system of books of account to be kept under this Code; provided, only, that it truly and comprehensively presents the facts and records indicated above.

Article V.

Emergency National Committee

A. Representation

There shall be an Emergency National Committee of the sheet metal and roofing contracting industry to consist of a representative of each division, representatives of the industry at large to be selected by divisional members, and representatives of other groups which may be entitled to representation.

(Names of divisions, groups and representatives to be inserted here before submitting Code.)

B. Powers

This Emergency National Committee shall be the general planning and coordinating agency for the industry. Its members selected by established divisions shall be empowered by the said divisions to act for them conclusively in respect to all matters before the committee for consideration and within its jurisdiction. The committee shall have powers and duties as provided herein, and in addition thereto it shall

(a) from time to time require such reports from divisions as in its judgment may be necessary to advise it adequately of the administration and enforcement of the provisions of this Code;

(b) upon complaint of interested parties, or upon its own initiative, make such inquiry and investigation into the operation of the Code as may be necessary; and

(c) make rules and regulations necessary for the administration and enforcement of this Code. The Committee may delegate any of its authority to the National Control Committee hereinafter provided, and may designate such agents as it shall determine.

Article VI.

Industry Regulations

(The same for all Divisions, as distinct from Division Regulations which may differ from Division to Division.)

A. Trade Practice Rules

Fair Trade Practices in the sheet metal and roofing contracting industry, to be practical, equitable and enforcible must necessarily apply equally to every person, co-partnership or corporation operating in the industry, and cannot sanction deviation from the following rules describing unfair trade practices.

Rule 1. The practice of using or substituting materials inferior in quality to those specified by the purchasers, without the consent of the purchasers to such uses or substitutions, and with the effect of deceiving or misleading such purchasers, or the use of materials inferior in quality to those required by the applicable governmental laws, rules and regulations as set forth in building codes in the territory affected, is an unfair trade practice.

Rule 2. The practice of using methods of manufacture and erection not in accord with the applicable governmental laws, rules and regulations obtaining in the territory affected, is an unfair trade practice.

Rule 3. The selling of goods below cost with the intent and with the effect of injuring a competitor and where the effect may be to substantially lessen competition or tend to create a monopoly or to unreasonably restrain trade, is an unfair trade practice.

Rule 4. The secret payment or allowance of rebates, refunds, commissions, or unearned discounts, whether in the form of money or otherwise, or secretly extending to certain purchasers, special services or privileges not extended to all purchasers, under like terms and conditions, is an unfair practice.

Rule 5. Willfully inducing or attempting to induce the breach of existing contracts between competitors and their customers by any false or deceptive means whatsoever, or interfering with or obstructing the performance of any such contractual duties or services by any such means, with the purpose and effect of unduly hampering, injuring, or embarrassing competitors in their business, is an unfair trade practice.

Rule 6. For any person, co-partnership, or corporation knowingly to aid or abet another in the use of unfair trade practices is an unfair trade practice.

Rule 7. Directly or indirectly to give or permit to be given or offer to give money or anything of value to agents, employees, or representatives of competitors' customers or prospective customers, without the knowledge of their employers or principals, as an inducement to influence their employers or principals to purchase or contract to purchase industry products from the maker of such gift or offer, or to influence such employers or principals to refrain from dealing or contracting to deal with competitors, is an unfair trade practice.

Rule 8. Securing information from competitors concerning their businesses by false or misleading statements or representations or by false impersonations of one in authority and the wrongful use thereof to unduly hinder or stifle the competition of such competitors is an unfair trade practice.

Rule 9. It is an unfair trade practice for any person engaged in interstate commerce, in the course of such commerce, to discriminate in price between different purchasers of commodities, where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly; provided that nothing herein contained shall prevent discrimination in price between purchasers of the same class on account of differences in the grade, quality, or quantity of the commodity sold, or that makes only due allowance for difference in the cost of selling or transportation; and provided further, that nothing herein contained shall prevents persons engaged in selling the products of this industry in commerce from selecting their own customers in bona fide transactions and not in restraint of trade.

B. Bidding Code

In all cases of competitive bidding, when estimates are furnished to architects, general, or other contractors or owners, all bids submitted shall be the final bid and no changes in the amount of any bid shall be made, excepting only those due to bona fide changes in the plans or specifications; and in such cases changes in the amount of the bid shall be made on the same basis as used in the original bid.

(1) In order that all competitors may bid on an equal basis, proposals shall be based upon the work as shown on the plans and as defined in the specifications.

(2) a. The industry approves of the setting of a date up to which bids upon sheet metal and roofing work for private purchasers will be received; the naming of a date when such bids will be opened; and public announcement of such bids made in the presence of bidders by architect, engineer or owner in the same manner as has been followed for many years by the United States Government and by State authorities in the letting of public contracts.

b. The request for, and submission of subsequent bids after bids have been received, opened and exposed in the manner stated above, unless there is a change from the original plans and specifications of ten percent or more in the quantities of material or labor, or both, within a period of thirty days, is considered unfair practice.

(3) The industry recommends that architects, engineers and owners, in the interest of fair competition, fix the closing date for bids on any particular job and that they allow sufficient time proportionate to the size of the project, for the preparation of a proper estimate.

The bidding on jobs without sufficient time for preparation of a proper estimate or without a copy of the plans and specifications being available to bidder as a basis for the bid is condemned by the industry.

(4) The failure of architects, engineers, owners and general contractors to award contracts for installations promptly to the satisfactory bidder in each class of work upon his original bid results in unfair methods of competition; and the failure of architects, engineers, owners and general contractors to keep confidential bids received and opened prior to the time that all bids upon such work have been received and opened results in unfair methods of competition.

(5) The industry approves a method by which sub-contractors file copies of their bids with the architect, or some other designated depository; the same to be kept sealed and confiden-

tial until after the day and date of closing, or after the letting of the general contract, following which they may be disclosed to all bidders.

(6) Undertaking to complete a contract upon which another contractor has temporarily stopped work because of non-payment of amounts properly due is an unfair trade practice.

(7) When methods of doing sheet metal work are not clearly shown on drawings or defined in specifications prepared by architects, it is recommended that methods shown in "Standard Practice in Sheet Metal Work," published by the National Association of Sheet Metal Contractors of the United States, Inc., be used.

Article VII.

Statistics

In order to provide data necessary for the administration of the National Industrial Recovery Act, the members of the sheet metal and roofing contracting industry shall furnish, and the Emergency National Committee shall gather, statistical information from all the members of the industry.

Article VIII.

National Control Committee

The Emergency National Committee of the sheet metal and roofing contracting industry shall appoint from its own membership a National Control Committee of three members. The National Control Committee shall exercise such authority as may have been delegated to it by the said Emergency National Committee.

All communications and conferences of the sheet metal and roofing contracting industry with the President or with his agents concerning the approval or amendment of this code or of any of its provisions, or any matters relating thereto, shall be the said National Control Committee. The National Control Committee shall serve as an executive agency for the Emergency National Committee of the sheet metal and roofing contracting industry, and shall be charged with the enforcement of the provisions of this Code and with the duties, through agents or otherwise, of hearing and adjusting complaints, considering proposals for amendments and making recommendations thereon, approving recommendations for exceptions to the provisions of this Code, and otherwise administering its provisions. Any division or any adherent to the provisions of this Code or subject to its terms shall have the right of appeal to the Emergency National Committee from decisions of the National Control Committee and the decision of the said Emergency National Committee on said appeal shall be final.

The function of this Committee shall be the general planning and coordinating for the sheet metal and roofing contracting industry, and the cooperation with similar boards of other industries to the end of effecting a balanced national economy.

Article IX.

General

1. No provision in this Code shall be interpreted or applied in such a manner as to:
   a. Promote monopolies,
   b. Permit or encourage unfair competition,
   c. Eliminate or oppress small enterprise, or
   d. Discriminate against small enterprises.

2. This Code or any of its provisions may be cancelled or modified and any approved rule issued thereunder shall be ineffective to the extent necessary to conform to any action by the President under Section 10 (b) of the National Industrial Recovery Act.

3. The Emergency National Committee of the sheet metal and roofing contracting industry and the National Control Committee shall from time to time make to each Division established or to be established under the provisions of this Code, such recommendations, including amendments of the Code, as in their judgment will aid the effective administration of this Code or may be necessary to effectuate within the sheet metal and roofing contracting industry or within any Division thereof the purpose of the National Industrial Recovery Act as administered.

4. Amendment to this Code may be proposed by any Established Division to the Emergency National Committee or may be initiated by it, and when approved by the President shall be effective.

5. Violation by any contractor of the sheet metal and roofing contracting industry of any provisions of this Code, or of any approved rule issued thereunder, is an unfair method of competition.

6. In order to avoid undue delay in making effective throughout the sheet metal and roofing contracting industry this Code of Fair Competition, the following provisions are adopted, and other provisions of the Code in conflict therewith, are suspended until such time as the Emergency National Committee shall determine that the purposes of the Article have been accomplished:

a. Each established Division shall submit as promptly as possible to the Emergency National Committee, a complete Division Code in conformity with the general provisions of this Code. Such Divisional Code, if found substantially to promote the purposes of the National Code, shall be accepted provisionally by the Emergency National Committee and its immediate enforcement authorized. The Emergency National Committee shall thereupon proceed as rapidly as practicable to make such adjustments of and coordination between the provisions in respect of hours, wages, production and costs of several divisional codes as may be necessary to bring them into conformity with the provisions of the National Code by:

1. Consultation and negotiation between the Divisions affected.

2. By its own findings after full consideration of all factors involved.

b. If any Division fails to submit within a reasonable time code provisions as provided in sub-section (a) of this Article, and if in the judgment of the Emergency National Committee such failure is unduly delaying the effective operation of this Code, the said Committee is authorized to act as a Divisional agency for said Division and to submit on its behalf the necessary code provisions which upon approval by the President shall be effective until the said Division shall have submitted satisfactory code provisions.

7. This Code shall be in effect beginning ten days after its approval by the President.

◆ ◆

Construction Industry Code Prepared

Three million wage earners now actually at work will be immediately affected by the Code of Fair Competition submitted to the National Recovery Administration by the Construction League of the United States and on which public hearings are scheduled to begin September 6th.

The Code is designed to serve as a master code for the numerous groups within the construction industry.

The minimum wage and maximum hour provisions of the code cover both "white collar" employees and manual labor, and provide for the former class a minimum wage ranging from $12 to $15 per week, scaled according to the population of the trade area where the work is performed, with a maximum work week of 40 hours. The minimum rate for manual labor is set at 40 cents per hour unless the hourly rate for the same class of work on July 15, 1929, was lower, in which event the rate prevailing on the latter date would be paid, providing it was not less than 30 cents per hour. Under the provisions of the code manual labor may not be employed in excess of a maximum of 35 hours per week during a six-months' calendar period, nor more than 48 hours in any one week or 8 hours in any one day.

The basic code is so drafted as to permit the operation of sub-codes for each of the segments of the Construction Industry. Each group would have a coordinating and administrative agency to handle its own problems, giving it full autonomy. Should a dispute arise between any two or more groups in the industry, the National Committee will serve as referee.

Among other things the basic code provides that minimum rates of wages and maximum hours of work may be established nationally or for a region or locality by mutual agreements **reached through bona fide collective bargaining** between truly representative national, regional or local groups of employers and employees.

The basic code contains one fair practice rule of far-reaching importance aimed at what is generally agreed to be the source of much of the competitive abuse within the Construction Industry. It provides that no one in the industry shall be a party to the unfair practice known as "bid peddling," and provides that all supplemental codes shall contain provisions to enforce this rule.

Group Progress On Codes

New York State

The New York State Association, Adolph Hesse, Utica, Secretary, is engaged in an active campaign to acquaint New York State sheet metal, furnace and roofing contractors with the latest facts regarding a code for the industry. Personal letters, personal contact by officers and a mimeograph machine have all been pressed into service to get the information to contractors. The eleven local state groups are all cooperating with the state and national.

Adolph Hesse writes—"It is time for all branches of our industry to get together for a cooperative effort. Large, strong associations are demanded. Jealousy and greed must be set aside. The act encourages organized effort. There is no advantage in not being an association member because all men or firms in an industry will be bound by that industry's code whether they are members or not. We appeal to all members of the craft in New York State to participate in this effort to raise our industry to a new high plane."

Mr. Hesse reports that the association is working with the National Association of Sheet Metal Contractors to formulate a code. President Wm. J. Schmitt of the New York State Association has appointed H. A. Daniels (Newburgh) to prepare a code for the state. Mr. Daniels has submitted the following suggestions:

1. People engaged in the trade should be required to do the work properly.

2. Customers' interests should be protected; sheet metal contractors should be protected against jobbers running shops or selling to ultimate consumers; they should be given the same protection against wholesalers and should also be protected against irresponsible, "buckeye" competition.

3. Anyone wishing to do sheet metal work should be required to have an established place of business, sufficient practical knowledge and experience to justify the belief that value and service will be rendered to customers, and they should be compelled to carry compensation and liability insurance where this is required by their State laws.

4. The journeymen should not be allowed to go around and do work, either on a contract or a day's work basis, for owners, agents or contractors without being required to carry compensation and liability insurance.

Individual Form

The National Association of Sheet Metal Contractors has prepared a form which contractors can fill in and sign and which authorizes the National Association to represent the firm or individual in matters pertaining to the national code. The form is drawn up as follows:

Certificate of Industry Representation

Sheet Metal and Roofing Contracting Industry

We hereby authorize the National Association of Sheet Metal Contractors of the United States, Inc., to represent us, in presenting to the PRESIDENT of the UNITED STATES agreements to be formulated in the sheet metal and roofing contracting industry in accordance with the provisions of the National Industrial Recovery Act, and we agree to accept and abide by such code of fair competition for the sheet metal and roofing contracting industry as may be duly formulated and approved by the PRESIDENT of the UNITED STATES as the standard of fair competition for this industry, to eliminate unfair competitive practices, to reduce and relieve unemployment, to improve standards of labor, and otherwise to rehabilitate our industry.

We normally do $..... business annually.

We normally employ from..... to..... employees.

We are now employing..... employees.

WITNESS our hand and seal this..... day of....., 1933.

Signed .....

(Title)

Name of Firm.....

Street Address .....

City and State.....

Southeastern Group

On August 6 some 150 contractors from Texas, Oklahoma and Louisiana met in Dallas to see if a tri-state or individual state associations could be organized. The decision of the meeting was to forego a tri-state group and first try to organize each state. Local groups within each state were also discussed and it was decided to make drives to strengthen or form local associations.

With minor changes and suggestions the meeting voted approval of the code proposed by the National Association of Sheet Metal Contractors.

* * *

Wisconsin State

The Milwaukee local of the Wisconsin State Association has approved most of the sections of the N. A. S. M. C. code and are working on suggestions for the other sections which they feel should be changed.

Most of the local organizations in Wisconsin are actively engaged in promoting or discussing a code with the idea of eventually proposing a state code or a group of suggestions for Wisconsin for inclusion in a national code.

Indiana State

The Sheet Metal and Warm Air Heating Contractor's Association of Indiana in a Board of Directors Meeting held recently voted to cooperate with the N. A. S. M. C. in all matters pertaining to the code.

Says Paul R. Jordan, Executive Secretary: "We are not affiliated with the National as a state association nor in any manner which prevents our association or our members from following independent action. We do recognize, however, that it will be necessary for the sheet metal industry to present a solid front at Washington in order to get our ideas across and have our interests protected.

"It seems to us that all sheet metal contractors must act as a unit and there ought to be no disagreement among us. It is our thought that all state and local organizations or groups ought to work out their individual problems locally, but submit our suggestions and wishes through as large a national organization as we can muster."

A full program of the next district meeting to be held in Muncie, August 25, was devoted to a discussion of the code.

* * *

New England Group

On August 8 a large group of sheet metal contractors from several New England states met in Beverly, Mass., for the purpose of forming an organization to be known as the New England Roofing and Metal Contractors and Fabricators' Association.

By-laws were prepared and a discussion on a code was held. No binding action was taken, but a working code will be presented at a later meeting.

A committee of 15 members representing all the groups and localities was appointed. Officers and committees will be announced later.

* * *

Ohio State

Since the Ohio state convention July 18, 19 and 20 most of the local associations within the state association have held meetings or appointed committees to draw up suggestions for special clauses covering local conditions. These clauses will be made a part of a suggested state or national code. Local associations and firms who belong to the national association are cooperating with the N. A. S. M. C.

Oregon State

A. W. Stanchfield, Secretary of the Roofing and Sheet Metal Contractors Association of Portland, Oregon, reports that under the impetus of the NRA code his organization is endeavoring to organize the contractors of Oregon into a state association to include roofers and sheet metal men.

* * *

Whiteside County, Ill.

The sheet metal contractors of Whiteside County, Illinois, held a meeting August 15 and appointed a committee to work out a code agreeable to the NRA.

The code committee is studying the tentative code of the N. A. S. M. C. and will report to a full meeting on their suggestions.

Ludwig Greager, of Sterling, is heading up the committee.

* * *

Georgia State

R. M. Barksdale, Secretary, announces that the sheet metal and roofing contractors of Georgia have organized the Georgia Sheet Metal and Roofing Contractors Association with headquarters at 905 Bernina Ave., Atlanta, and have applied to the N. A. S. M. C. for membership.

* * *

Macomb, Ill.

Most of the furnace men in Macomb, Illinois, have formed a tentative organization, but in all cases have signed the blanket code. One member who signed reports that the town's habitual price cutter refuses to fall in line and boasts that he will continue to conduct his business as he sees fit.

The code signers want to know what can be done about this individual and how he can best be brought into line.

WE DO OUR PART

AMERICAN ARTISAN has complied with the President's agreement by conforming with the substituted provisions of the code submitted for the magazine and periodical industry. It has signed the required certificate of compliance and will hereafter display the blue eagle in each issue.

Washington State

At Seattle, on July 18, more than 70 sheet metal shops were represented in a meeting at which the Washington State Association of Sheet Metal and Roofing Contractors was organized. Officers elected are—

John Garner— Pres.
William Burke—V. Pres.
I. McVey—Treas.
Robert W. Larsen, Secretary.

Carl Honore, Seattle; Mark Favro, Seattle; George Gehri, Tacoma; Dayton Malty, Tacoma; H. Laub, Bellingham; Frank Baumgardner, Seattle, were elected Trustees.

* * *

St. Louis Local

The St. Louis local association has appointed a code committee empowered to set up a statistical and suggestion report covering local requirements and suggestions for clauses covering these points. A report is expected shortly.

Philadelphia Local

The Association of the Roofing, Metal and Heating Engineers of Philadelphia, Fred U. Ritter, Secretary, held a meeting on August 17 for the purpose of answering all questions and suggesting methods whereby Philadelphia's needs and suggestions may be considered in making up the code for the industry.

According to Mr. Ritter there are 710 shops in Philadelphia and every one of these shops will be governed by the industry's code whether they participate in its preparation or want to abide by its provisions.

The Philadelphia association expects to adopt the National Sheet Metal code with perhaps some provisos.

* * *

Illinois State

During July and early August several of the local Illinois associations prepared questionnaires carrying suggestions for wages and working hours and special clauses covering local unfair practices. These suggestions were sent to the N. A. S. M. C.

In Illinois all members of the state association are also members of the N. A. S. M. C. so their suggestions will be included in the national's code.

Considerable thought is being given, according to state president F. I. Eynatten, to the desirability of having peculiar local conditions adequately covered in a national code.

* * *

Louisville Local

The Louisville, Kentucky, local association was one of the first organizations to take action on the NRA code. The association returned to national headquarters information asked for and recommendations for wage and labor clauses immediately after the forms were received.

How To Present a Code

If you choose to apply as an individual or a local organization

1. Two copies of the Application for Presentation of a Code of Fair Competition must be filed in the prescribed form by an authorized representative of a trade association or an industry.

2. Application forms may be secured from the Control Division of the National Recovery Administration either by writing for them or calling in person.

3. The Control Division will furnish assistance in preparing applications.

4. After an analysis of the application the applicant will be referred to a member of the Administration staff to review the code and prepare it for presentation to the Deputy Administrator who will be assigned to conduct the Public Hearing.

5. Industries should not unduly delay the filing of an application or a code because of an attempt to secure accurate data as herein indicated. Where no statistics are available estimates are desired.

6. Whenever deemed necessary by an industry on account of peculiar conditions therein, the application may be accompanied by a statement discussing those features of the industry and the provisions of the proposed code designed to meet these problems.

Built-up, Slate and Copper Roofing For a Government Hospital

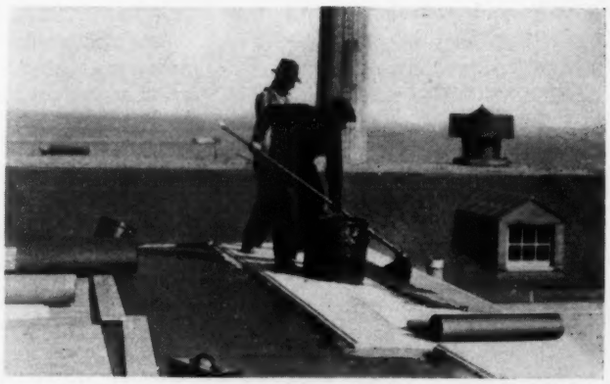
At the left the sheathing paper has been tacked on and the eave row of insulation mopped down. The crew is applying pitch for the second course of insulation.

At the right a crew is placing the eave row of insulation, taking care that the edge is aligned for the application of flashing and four-ply roof adjoining the slate.

LAST winter John D. Busch and Sons, Inc., Detroit, completed a contract on a new group of buildings erected on the grounds of the Marine Hospital, at Wind Mill Point. Included in the contract were the application of copper, slate, waterproofing and built-up, insulated roofing. The material was applied in accordance with the latest governmental specifications for substantial, long lived roofing and is, therefore, of interest as indicating the latest thought in work of this type.

One of the buildings, a double wing to the general hospital group, includes application of slate, copper and built up roofing and serves, therefore, to outline the scope of the whole contract.

The roof of this building is of the mansard type, with the pitched slopes covered with slate, the dormers, gutters and valleys of copper and the flat deck at the top covered with an insulated built-up roof.



Right—Insulation has been laid, also the first course of roofing felt and the felt is being mopped for the second felt course. Local areas were completed to eliminate unnecessary traffic.

The roof is composed of heavy wood sheathing laid on the rafters and top joists. The wide gutters were framed for the metal by the carpenter, while the masons laid stone coping which carries the outside edge of the gutters.

The Deck

On top of the main deck and on the flat decks which join the new and old buildings felt laid with 17-inch laps was mopped down. Along the edges of the deck the first two layers of felt were doubled and tacked at the edge. The outer edge of each succeeding course of felt was tacked through to the sheathing so that every row of nails showed when the deck was ready for the insulation.

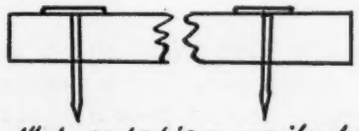
The insulation was celotex laid as 1-inch material.

A heavy mopping of pitch was made over the paper and the courses

of insulation laid from end to end of the deck directly behind the mopper.

Only parts of the deck were insulated ahead of the finished roof. Usually three or four courses of insulation were laid at one time so that the balance of the deck could be used for working purposes without subjecting the finished roof to heavy traffic.

A standard four-ply roof was laid on top of the insulation.



1" Insulation nailed to Roof boards. Celotex

Edge sheets were doubled over and nailed through the copper flashing which waterproofs the joint between built up roofing and slate. In laying the finished roof the felt was rolled out three rolls at a time so that most of the three courses of insulation were covered as the workmen went along. The operation is shown in one of the photographs which shows the crew laying the felt on the insulation.

The weather surface of the roof is gravel spread to give a cover of 400 pounds to the square.

Left — Several courses of insulation were laid and the four-ply roof was applied complete from end to end over one-half the deck area. Note the lapped joint used between insulation courses.

The type of roof laid is four-ply standard specification wherein each course of felt is lapped 27½ inches and laid in a full mopping of pitch. Each sheet was nailed about 6 inches from the top edge.

Copper Work

Considerable copper work was included in the contract with the gutters, valleys, dormers and small decks covered with metal.

The dormers which are let through the slate roof around the inside and outside faces of the building required the most material but are not ornamented. They consist of flat locked and soldered roofs, plain standing seam cheeks and faces and the necessary connecting flashings and valleys for the slate.

Roof sheets were fabricated as small individual sheets about two feet wide and the same deep. All sheets were cut and edges turned in the shop ready for laying and locking on the job. Eave edges are locked to the molding as shown in one of the details. This molding was formed and delivered at the job requiring one cutting for miter after placing.

Because of the slate roof particular attention was paid to the flashing around the dormers. Below the window sills in the face a wide flashing sheet was brought out from under the sill or behind the facing sheet and carried out several inches over the slate. Along the bottom of the cheeks a similar sheet was brought out from under the side sheets and

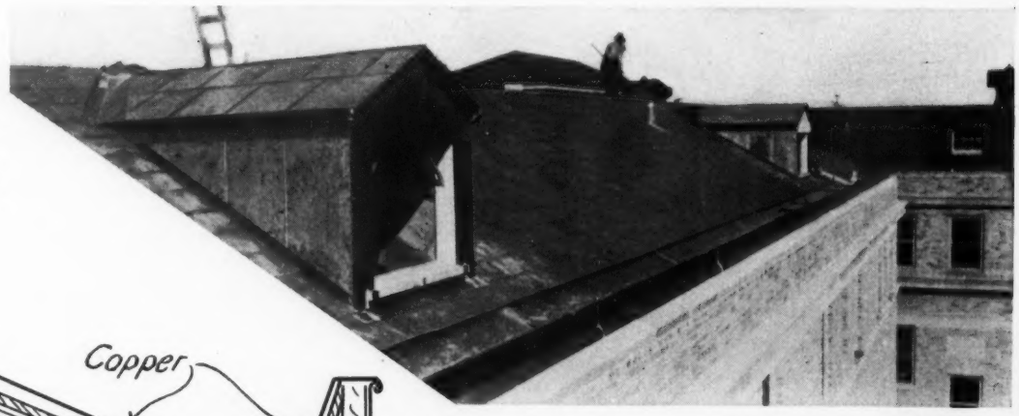
The slopes of the roof were covered with slate, with the slaters working simultaneously with the roofers and the sheet metal men. Three hundred squares of slate were required.

carried under the slate. At the top the flashing is placed behind the face molding of the eave.

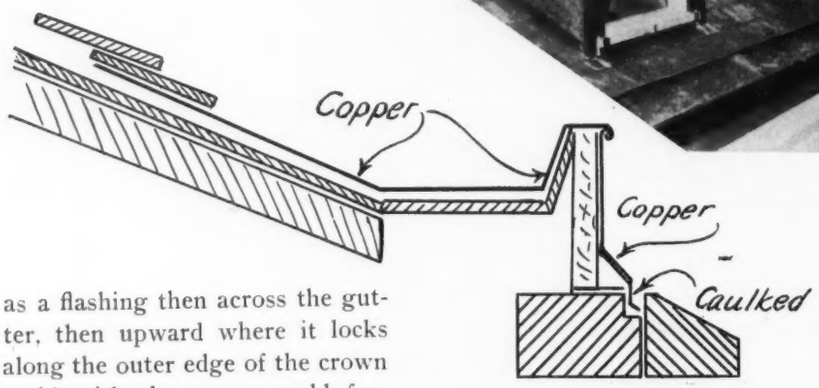
The roof of each dormer is flashed to the slate roof above with a wide combination valley and flashing held under the slate and locked to the roof sheets. The general construction of the flashings may be seen in the detail drawings and the photograph showing the dormers.

Gutters

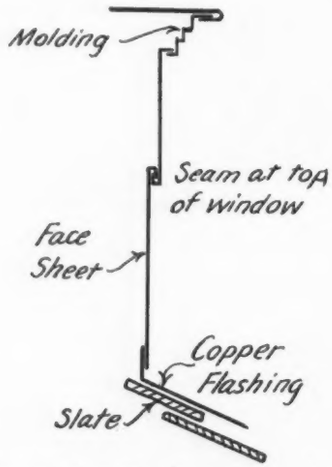
The gutters below the mansard vary in girth from a few inches to more than three feet with the high points at the narrow widths. In designing the gutter two sheets were used. The gutter liner is brought out from under the slate



The dormers and gutters are sheathed in copper. The detail shows the general construction of the gutters with the crown mold and the reglet for the lower end of the facing sheet.



as a flashing then across the gutter, then upward where it locks along the outer edge of the crown mold with the crown mold facing sheet. This facing sheet is pitched out at the bottom and ends in a reglet in the masonry cornice. This design eliminated any seam required to join slate flashing and gutter liner.



Cross section of a dormer face showing the sill flashing and connection between roof sheets and facing sheets.

All cross joints are located at 10-foot intervals and are soldered for water tightness. As the gutter drains at the corners of each wing the high points are placed midway between corners.

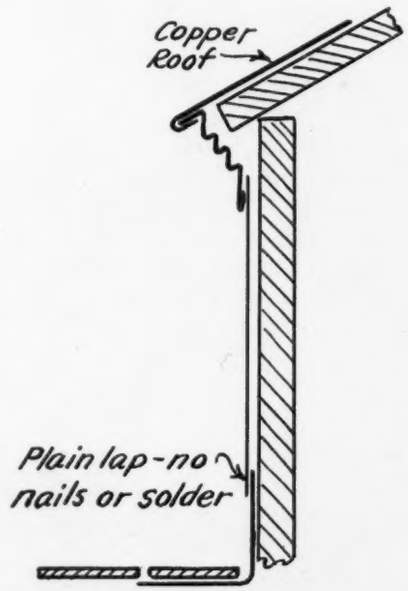
More than 12,000 pounds of copper were required for gutters, valley, dormers and decks.

Slate Roof

Some three hundred squares of slate were required for the job. The slate was laid over waterproof felt with all copper nails. The slate used is blue gray in 12 by 24-inch size and was laid with a 10½-inch exposure. All valleys are open on copper linings.

In planning the field work for the contract, a kettle yard was set up at the front of the building adjacent to the driveway. This location made it possible to serve the two large wings shown in the photographs. When another large building separate from the wings was started the kettle yard was moved to a center point of the building.

The hoist used for the carpenters and masons was used on both set-ups to raise asphalt, felt, sheet metal and slate.



Cross section of the dormer showing the roof, cheek and flashing construction

Between the wings lower decks are copper covered with small sized sheets flat locked and soldered and running into wide gutters sheathed with one sheet of metal.


CHECK SHEET

Owner's Name
Address
Phone
General Description Of House
Age
Cond't.
Size Required
Make and Type Of Furnace
Condition
Draft
Chimney Location
Style
Condition
Registers
Type
What Results Does It Give?
Humidifier?
Arrangement
Condition
Filters?
Location
Results?
Thermostat?
Hookup
Results?
Controls?
Can They Be Used for F. A. Explain
Leaders (Condition of)
Can They Be Used for F. A. Explain
Stacks (Condition of)
Return System (Description of) Is It Adequate?
Are Any Rooms Cold? Remedies Suggested
Any Drafts?
General Air Circulation
Describe Poor Rooms
What Changes Do You Suggest for Remodeling?

Repair, Remodeling And Replacement — An Announcement

The question uppermost in our minds this September is—"From what sources will come my heating work this next winter?"

We believe, and the belief is substantiated by an investigation conducted for several weeks past, that the big volume of heating work this next winter will come from the repair, remodeling and replacement of existing warm air heating plants.

Thousands upon thousands of furnaces have been neglected during the last three years. Hundreds of furnaces are being held together with band iron, cement, bolts and so forth. Just as soon as the owners of these furnaces have the money they will want new equipment.

To these thousands who must have new equipment we should add other thousands who are enough interested in air conditioning to be willing to listen to our story of the advantages of the equipment we can install.

To sell this market we must be able to do two things.

First, we must be able to sell our equipment and our service.

Second, we must be able to correctly engineer the job.

We propose to publish a series of articles, beginning in October, in which all the ramifications of selling and engineering are fully covered.

In this series we will show methods of selling fans, filters, controls, humidifiers, registers and grilles, improved casings and air conditioning. Letters for the home owner, advertising, direct mail, solicitation methods will be discussed. In addition, actual campaigns by contractors will be related.

As contractors have discovered, the application of a fan to a gravity type furnace does not make a 100 per cent perfect forced air job. Neither does another water pan solve all the probems of humidity. Correct engineering for remodeling considers all problems from their basic application and from a thorough analysis of the problems encountered evolves a system which gives the owner exactly the type of installation he desires and wishes to pay for.

Good engineering requires sound theoretical and practical knowledge of equipment and its operation, air and its behavior, and the limitations imposed by cost.

To help contractors solve these problems and do satisfactory remodeling, this series will discuss the selection and application of fans and furnaces, casing baffling for forced air, determination of velocities, capacities and temperatures in risers, leaders and registers, design of the return air system, testing and supplying adequate humidity, air cleaning, and other problems of design.

Information will be drawn from existing sources, from engineering data, from the manufacturers and where no information is available from our own test installations.

Automatic Controls

This article continues the discussion of a control hookup in which the room thermostat controls the fire through the draft and check, a limit control in the bonnet serves to prevent room temperature over-run and a fan control starts and stops the fan. This article points out some of the factors to be considered in selecting the settings of the limit control.

IN our August issue we began discussion of a control system in which a room thermostat controls the heat supply by actuating the draft and check, a bonnet control starts and stops the fan and a second bonnet control in series with the room thermostat prevents room temperature overrun by checking the fire ahead of the room thermostat.

In the August issue we pointed out some of the problems relating to the selection of proper settings for the fan control. In this issue we will discuss the problems connected with the selection of settings for the bonnet limit control.

It may be well here to pause for a moment and consider again just what it is we wish to do by installing controls. In addition to keeping room temperatures uniform and comfortable our controls should maintain as uniform a combustion rate as possible, they should make available enough heat to satisfy the owner, they should handle sudden demands quickly, entail as few adjustments by the owner as possible and they should keep fuel consumption low.

If we read these requirements again and keep in mind the system under discussion, it should be obvious that most of the requirements listed are functions of the limit control we placed in this hookup. The importance, therefore, of using and setting the limit control intelligently are readily understood.

The limit controls on the market are of several types. In general, all instruments are designed to cover a temperature range of several hundred degrees and have adjustable differential settings. In other words, most instruments permit "open" operation and "closed" operation between as few a number of degrees as 10 or 15 or between as large a number of degrees as 40 or 50. With this wide adjustability, it remains for the contractor to use his experience to select the settings he prefers.

An Operating Cycle

To complete the picture let us consider how this system operates. As the room cools the room thermostat calls for heat. The electrical current flows from the room thermostat toward the damper motor with the purpose of causing the motor to open the draft door and close the check. In the path of the flowing current we have placed our limit control. We have set the limit control to keep the draft closed whenever the bonnet temperature goes above some setting (let us say 200 degrees) and have also established a low setting to permit the draft to open if the bonnet temperature is below the "low setting" (say 150 degrees). Remember we are using these temperatures only as examples.

Let us suppose that the bonnet temperature is below 150 degrees. The current flowing from the room thermostat finds the limit control circuit closed so the current flows on to the damper motor and the draft opens. The fire begins to pick up until the "on" setting temperature of our fan is reached when the fan starts. If our fire is responsive the furnace is able to keep the bonnet temperature above the "off" setting of the fan so the fan continues to run until the room thermostat is satisfied.

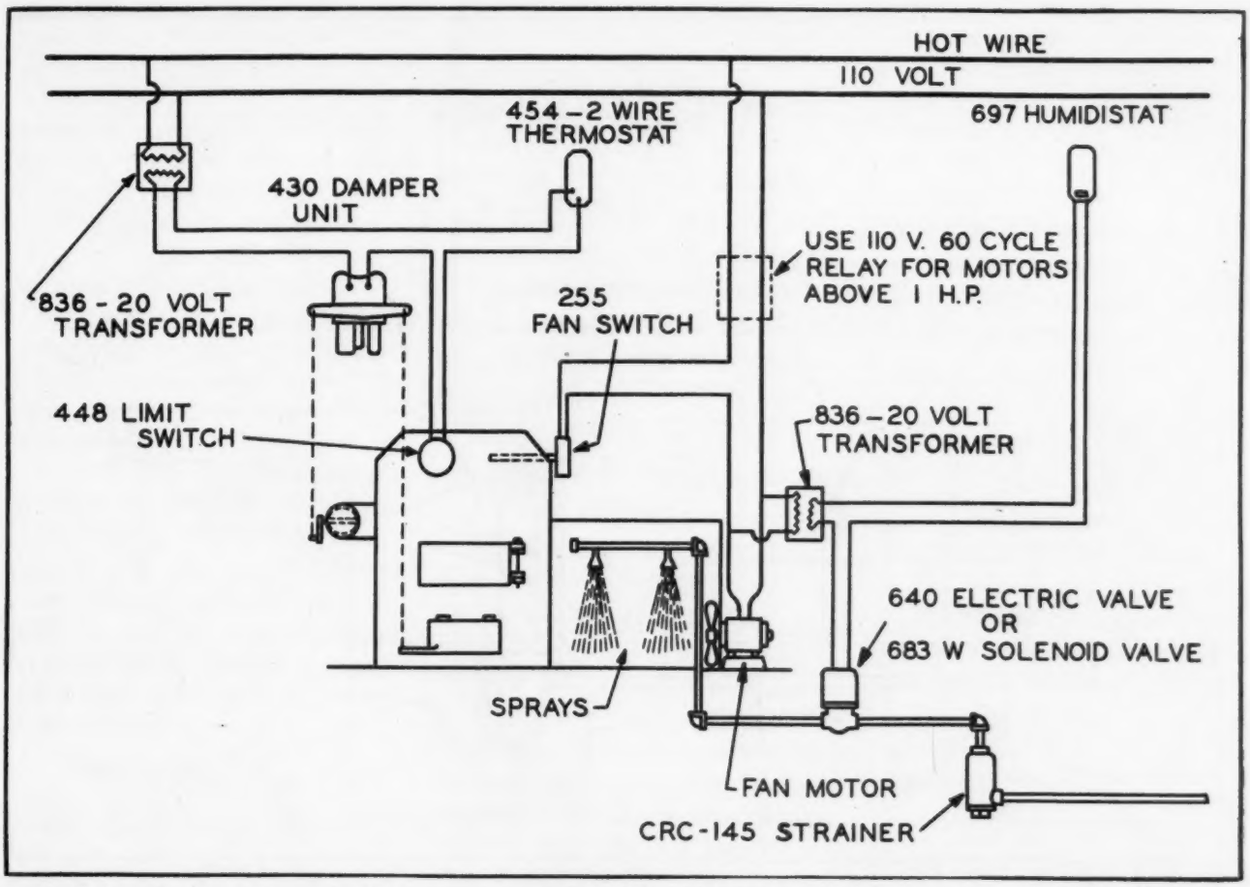
If we did not have the limit control the fire will continue to accelerate until the room thermostat is satisfied when the draft closes. But we know that if we permit this operation the fire will be going strong when the room thermostat is satisfied and the heat generated will cause the fan to start and warm air which we do not need will be blown into the room.

In order to prevent this we have introduced the limit control with the idea of so setting it that the draft closes before the room thermostat is satisfied and the fan stops on a dying fire. Naturally this keeps bonnet temperatures down and prevents largely the introduction of warm air which we do not need.

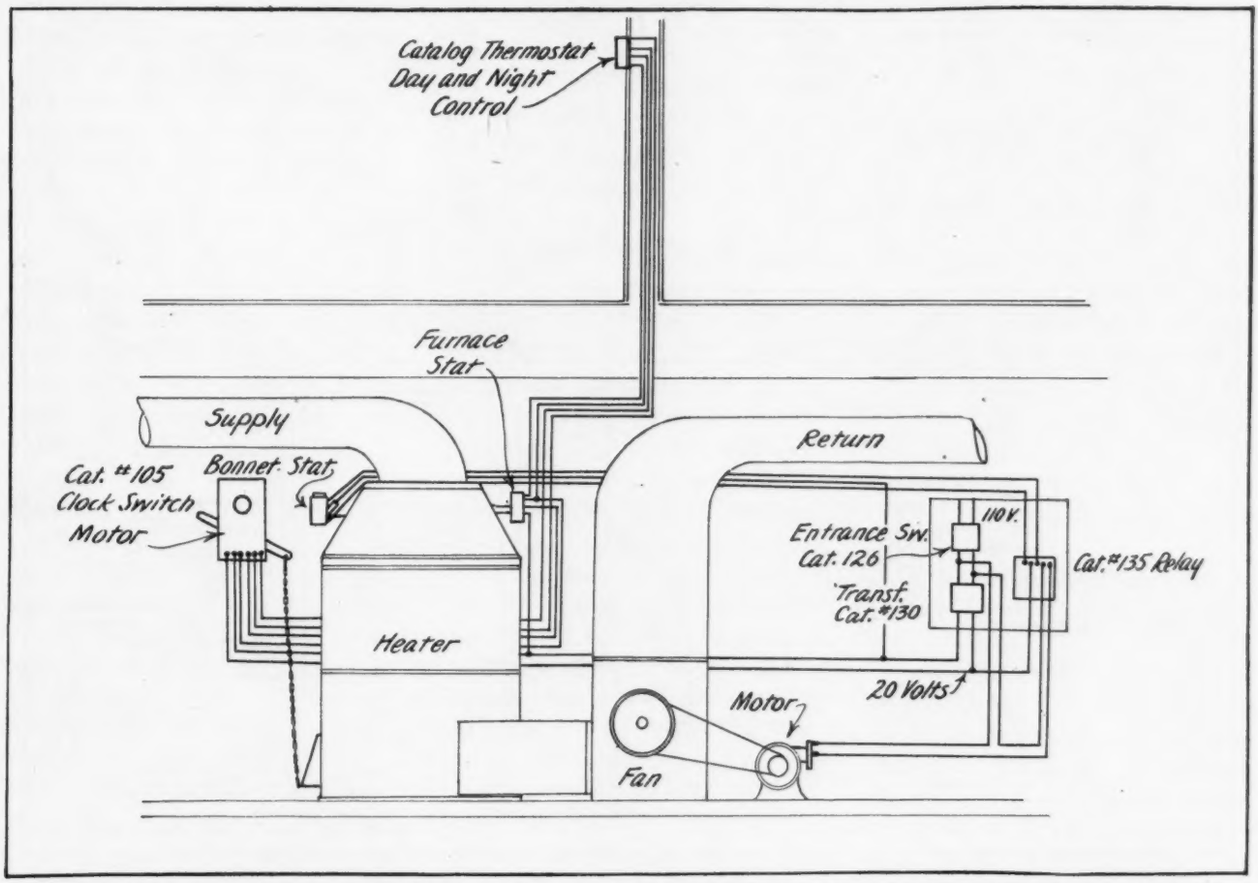
It should be evident, then, that the settings we select for the limit control are somewhat in the nature of a gamble. We bet that we can pick a setting which will cause the fire to be checked far enough ahead of the room thermostat's being satisfied so that warm air we do not need will not be blown into the house. To select this setting requires experience, but of more importance requires some knowledge of fire action.

The questionnaires we have mailed out indicate that in too many instances the contractors are not thinking about the real functions of the limit control, but are setting the instrument by guess. These questionnaires show that "high" settings of between 250 and 450 degrees are being used.

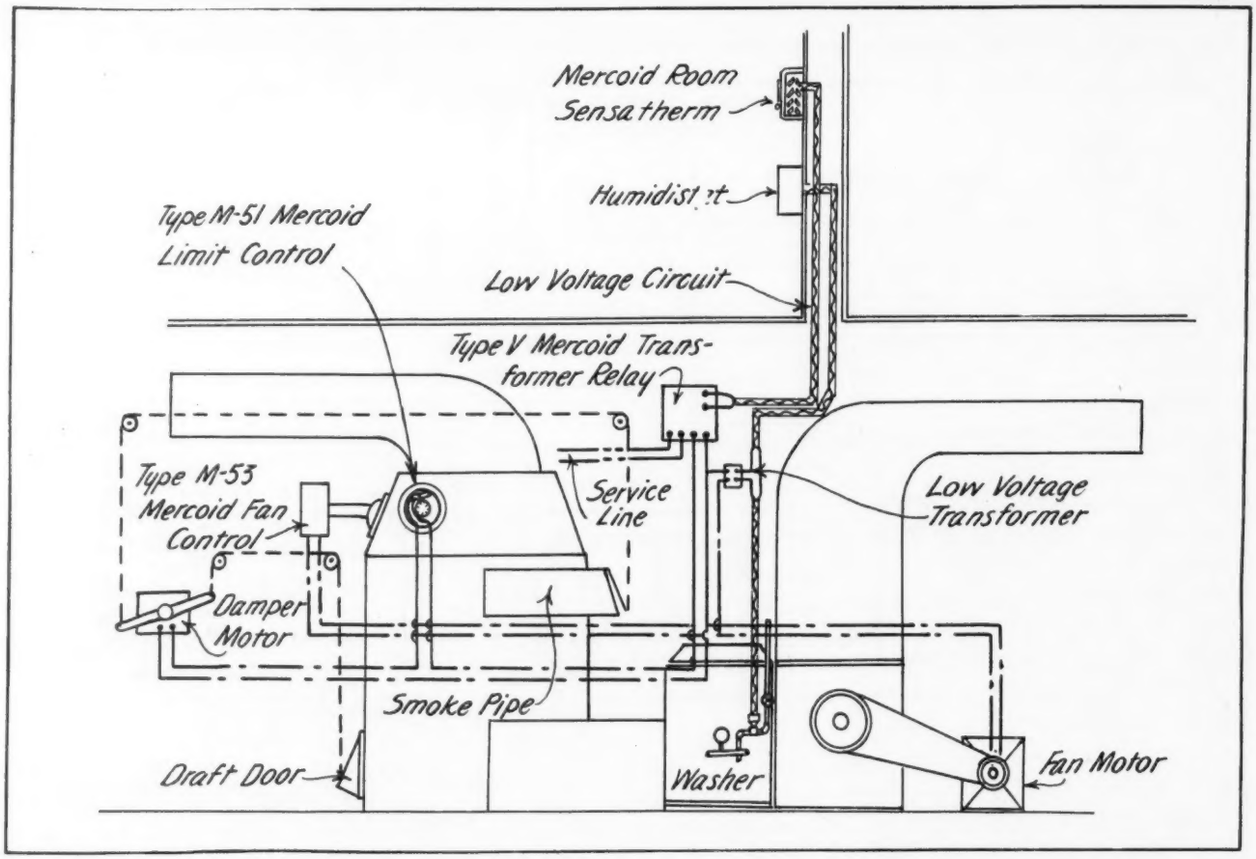
To fully appreciate just what this means let us consider what is going on in the furnace. Whenever



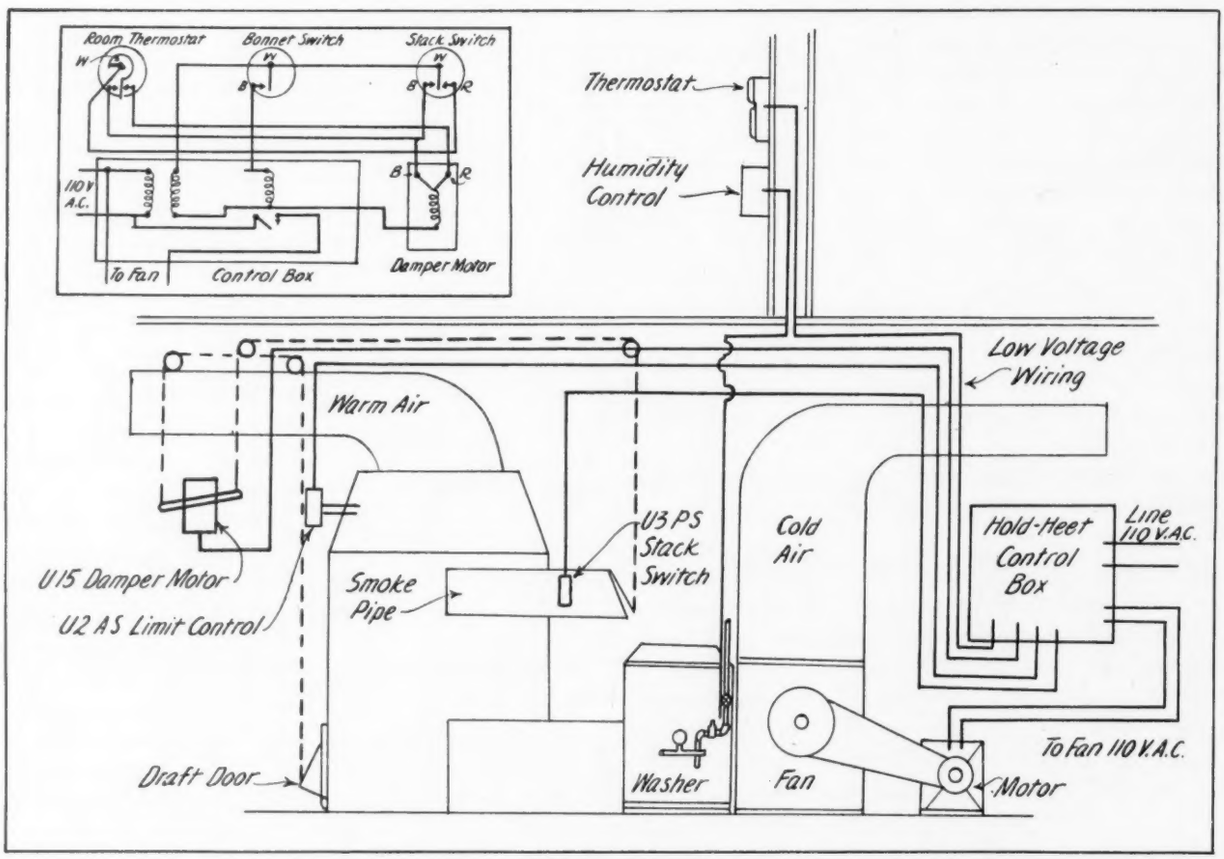
The instruments and wiring above show equipment of the Detroit Lubricator Co. The system uses high and low voltage as shown and connections are made in accordance with the diagram. With proper selection of settings this system gives close control over the room temperature, the fire and humidity.



This diagram, using equipment of the Stat-Amatic instrument and Appliance Co., employs a dual thermostat with a second element for reduction of night temperatures. In this hookup the draft is returned to the room thermostat when bonnet temperatures fall below the low setting. The fan is controlled independently



Low voltage between instruments with line voltage for motor used in this equipment of the Mercoid Corporation. When room thermostat calls for heat the relay operates damper motor and opens draft. When bonnet reaches "on" temperature the fan starts. When room thermostat is satisfied the draft closes and fan stops



In this hookup the limit control is placed in the stack as indicated. The fan starts and stops from a bonnet control while the room thermostat controls the fire through the draft and check. As pointed out in the text, stack locations are probably a truer indication of fire conditions than bonnet locations, but settings must accommodate the higher temperatures of the stack. The equipment shown here is made by Russell Electric Co.

the bonnet temperatures reach a temperature of 250 to 325 degrees we can be sure that the fire is burning at a high rate. We also know that for 250 degrees bonnet temperature or higher our flue gases will show temperatures of 500 degrees or more and this high combustion rate is very seldom required.

It should be far better, then, to keep these bonnet and flue temperatures down in order to save fuel and more closely control house temperature. It may be assumed that wherever contractors are setting their limit control at any bonnet temperatures above 250 degrees (and certainly above 300 degrees) they are making the limit control merely a safety control and are not using the instrument as a fire and fuel control.

How Low Is Low?

This naturally brings up the question—"How low can I set the limit control?"

The answer lies in a consideration of the system itself. For example let us presume that our fan capacity and furnace delivery capacity are nicely balanced. If the fire is reasonably clean and responsive the furnace should be able to generate heat as fast as the fan removes it.

If we could be sure that our fire will keep up with the fan withdrawal we could set our "high" setting of the limit control exactly the same as the "on" setting of the fan and rely on the temperature difference between the "on" and "off" settings of the fan to permit the furnace to keep up with the withdrawal of air.

But in actual use fires are not clean, chimney draft varies, fans may be oversized, temperatures around the bonnet may vary, so we have to allow ourselves some margin of safety.

We must ask ourselves, then—"How much margin?"

Test data collected from actual installations indicate that we can adopt a margin of 15 to 25 degrees as a starting point for balancing the control system. Ordinarily we will find that a "high" setting of 15 or 25 degrees above the fan "on" setting will work for weather as cold as 25 to 30 degrees above zero.

In presenting this series the aim is to explain why certain settings are selected for the instruments and to point out the good and bad features of each hookup. Drawings have been devised to show the arrangement of apparatus and the general type of wiring employed. Your specific questions are invited.

If for any reason this margin does not satisfy then the setting can be raised. To determine whether or not the setting is high enough we ask—does the fan continue to run once it starts? If our margin is too small the fan will quickly exhaust the warm air in the bonnet and stop. The heat builds up and the fan starts. If the "high" limit control is too low the fan operating cycles will be frequent and this is a condition we should avoid. What we want is as near continuous fan operation as possible, once the fan starts.

High-Low Margins

We mentioned two paragraphs back that a margin of 15 to 25 degrees will serve in "mild" weather. In weather colder than 25 degrees we may find it necessary to raise the "high" limit control setting 25 or 50 degrees. The reason is that in zero weather some houses may require fan operation for as much as 18 or 20 hours out of the 24. This means that the furnace is also called upon to deliver heat or to work with an open draft for almost as many hours and with the usual firing the fuel bed burns down and the furnace can't respond or supply heat as rapidly as the fan withdraws air.

Contractors should make it plain to the owner that such conditions are not the fault of the control system and that in cold weather the control system must be helped along by heavier and more frequent firings. This trouble often causes complaints.

Register Temperatures

In this system where the limit control is used we may consider that the limit control exerts considerable influence over the air temperatures we will get at the registers. At first thought this may seem incorrect, but if we will consider the idea it will be evident that in most furnace-fan systems, especially where intermittent fan operation is used, the furnace will in cold weather have the draft open a large part of the time and that the furnace will generate heat faster than the fan withdraws heated air.

Whenever this situation occurs it is obvious that the bonnet temperature will rise above the "on" setting of the fan and will continue to rise until checked by the limit control. Therefore, whenever this operation takes place we will get from the registers air of a temperature equal to the high setting (or slightly below) of the limit control and not air of a temperature equal to the "on" setting of the fan.

If, then, our limit control "high" setting is around 300 degrees we will get 300 degree air, less the temperature drop in the piping. If we could be certain that our fan will always withdraw all the air which is heated as rapidly as the furnace heats the air, we would not have to give this idea any thought. But since we know that bonnet temperatures often rise above the fan "on" we must look to the "high" limit control for some check on register temperatures.

In other words, this makes another reason for lower limit control settings.

Seemingly these considerations destroy many of the ideas long held by contractors, but if we remember that this limit control is a critical control over our fire we can understand why it should not be used as a safety control but should become a functioning control leading to satisfactory results.

1,200,000 Cubic Feet Heated In 20 Degrees Below Zero By "World's Largest Furnace"

IN St. Paul, Minnesota, there is a heating installation which possesses the distinction of having what is probably the largest single furnace ever built. The installation is in the Pastime Riding Academy in St. Louis Park and the furnace is a steel unit, especially built for the installation. In overall dimensions the furnace proper is 6 feet in diameter and 11 feet high while a heat saver unit, attached to the rear of the furnace, is 6 feet in diameter and 10 feet high.

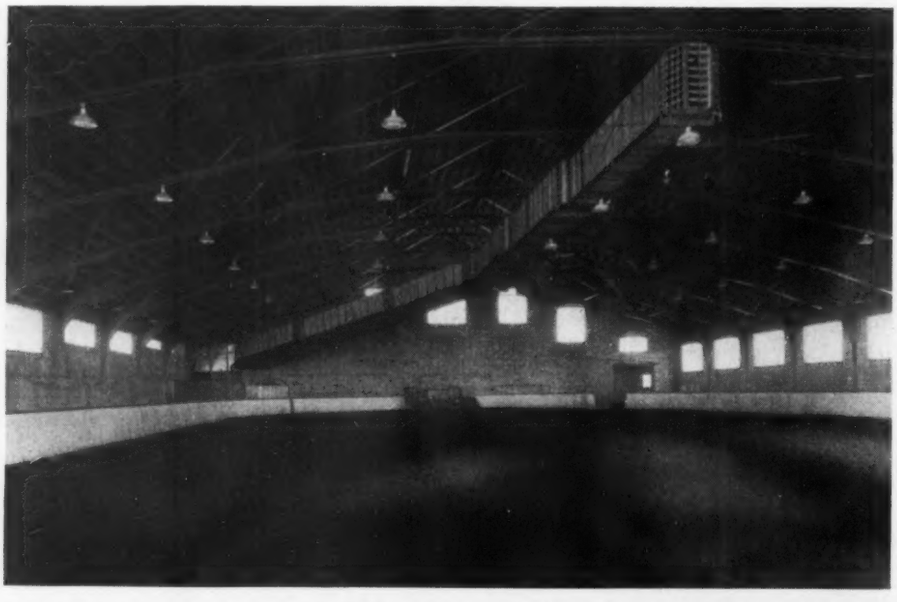
In the fall of 1930 the directors of the academy decided to install a heating plant in their new building. Because of the building's large size and peculiar requirements steam was first considered. However, the directors realized that the building would be in use only a part of the time and consequently they were somewhat dubious about steam's suitableness during periods when there would be no heat in the building and freezing of the pipes might occur unless draining was resorted to in severe weather.

One Furnace Wins

In asking for bids from warm air heating contractors most of the bids specified at least two furnaces in order to meet the building's requirements. This complicated the plan to use a stoker unless two stokers were purchased. The Brown Sheet Iron and Steel Company, however, specified one furnace, especially built and of such a large size that one furnace and one stoker would heat the building. This bid was accepted and the "world's largest furnace" was consequently built for this installation.

The specifications called for an interior temperature of 50 degrees in outside weather of 20 degrees below zero—a 70 degree temperature rise in unusually severe weather. Further specifications demanded that the air supply be so distributed that riders in the arena must not be subjected to drafts of cold or hot air.

The building itself presented a real problem in warm air heating. The structure is composed of brick and concrete walls, broken by steel sash windows in long rows, a built up roof supported on roof trusses which span the 130 feet of clear floor area. There is no ceiling as the truss bottom chords are open. The building is 250 feet long and the bottom



The furnace and blower are placed in one corner. One huge duct, 6 by 12 feet at the heater, is brought down the center of the arena. Supply registers are cut in the sides of the duct. Diffuser blades control the air direction.

The riding academy is brick and glass with a light built up roof, no inside ceiling and has a heat loss of around 2,500,000 B.t.u. per hour in 20 below weather.

An idea of the size of the "world's largest furnace" is given by this photograph of the riding academy furnace alongside an average sized furnace.

chords of the roof are an average of 28 feet above the floor.

The cubical contents of the building is 1,200,000 cubic feet and the heat loss at 20 degrees below zero is approximately 2,500,000 B.t.u. per hour.

The Duct System

How the heating contractor solved the problems presented are shown in the interior photograph which shows the furnace and blower located in one corner and a single main duct with grilled openings extended through the approximate center of the floor area. The heat supply openings are cut into the duct at frequent intervals and faced to insure uniform distribution of warm air over the entire floor. This duct is 192 feet long and is 12 feet wide and 6 feet deep at the heater end.

The duct is constructed of small sheets locked vertically and horizontally with standing seams with the whole duct suspended in an angle iron frame which is suspended from the bottom chords of the trusses. Special diffuser register faces as shown were used with the blades set to throw the weight of air toward the floor. Duct reduction for resistance and capacity is used at each supply opening.

To insure an adequate supply of air a blower with a capacity of 68,000 C.F.M. was connected to the furnace and propelled by a 15-horse power motor.

The specially built furnace has overall dimensions as given in the first paragraph. The grate area is approximately 30 square feet with 782 square feet of heating surface for furnace and utilizer. The shell of the furnace is ½-inch steel while the heat utilizer is $\frac{5}{16}$-inch steel. Both drum and utilizer are welded and riveted.

The furnace has a capacity of 3,500,000 B.t.u. per hour based upon a 10-pound combustion rate for the stoker, a combustion rate impossible with hand firing.

System Saves Fuel

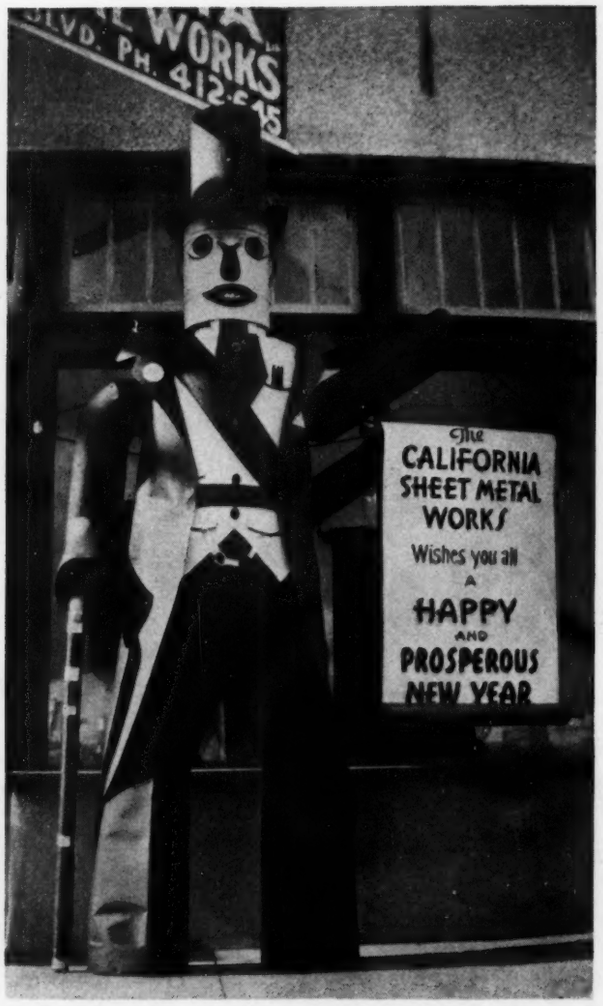
An interesting result obtained with this system is the savings in fuel consumption. Engineers in estimating heating costs stated that with hand firing costs would be high. The combination single furnace, heat utilizer and stoker showed definite savings of two-thirds of the estimated cost.

In operation it has been repeatedly shown that this system will heat the entire interior from zero outside temperature to 70 degrees in 30 minutes' time. Also the system may be completely shut off when the building is not in use without fear of any trouble with the heating plant.

While there have been larger structures heated with furnaces, it is believed that this is the largest single furnace installation yet made and shows the versatility of fan-furnace heating.

Sheet Metal Man Advertises California Shop

By J. E. Tufft



This is the sheet metal man all dressed up in his holiday outfit. The coat and pants are made of tar paper while the vest is asbestos paper.

A SHEET metal man — not a man in the sheet metal business, but a man made out of sheet metal—and his "little boy" standing out in front of California Sheet Metal Works at 5173 North Long Beach Avenue, Long Beach, Calif., have been the best bits of publicity ever tried out by W. T. Harris, the proprietor of the shop.

"If I may say it," says Mr. Harris, "that sheet metal man and his son have brought me a volume of drop-in trade that has helped out wonderfully since the depression cut regular construction work down to the minimum in Long Beach. I give the sheet metal man credit for keeping us busy when we otherwise might not have been busy."

Construction

The sheet metal man has a garbage can for a head, a funnel for a cap, a six inch galvanized iron pipe for a neck, a sheet metal tank with the bottom end up for a body, a Y-branch for his hips and thighs, galvanized pipes for his legs, collars for his feet, galvanized pipes for his arms, and a two inch pipe for his cane with an elbow at the end to give the cane the proper hook.

This good old man has the company's sign hanging on his arm.

During all ordinary seasons this man and his boy wear no superfluous clothing but stand out there in their native sheet metal sturdiness, but during special seasons the indulgent owner of the shop dresses them out in garb suitable for the season.

For instance, during the New Year season last year Mr. Harris made the sheet metal man a nice high topped hat and a swell dress suit out of black tarpaper, he made him a vest of asbestos paper, put fancy stripes on his cane, he made him a watch chain of sheet metal, painted him a cigar and he stood forth in his glory.

Publicity Value

"This sheet metal man has been written up in local and Los Angeles papers," says Mr. Harris, "and has even had some publicity in Europe. As we are on one of the main boulevards leading into Long Beach from Los Angeles, Pasadena, and other cities north of us, thousands of people see the sign every day. We have made business contacts with men living at distances and so are no longer dependent upon local trade. I doubt that very many people in the Los Angeles area have missed seeing our sheet metal man and his boy.

"The man and boy are really better advertisements of our business when they are not dressed up, but when they reveal their construction, —garbage can, funnel, tank, elbows, Y-branch, etc. The man did not cost me more than fifteen dollars or such a matter in actual money, possibly not that much since I made him from odds and ends that had accumulated in the shop."

A

Automatic Heat *and* Air Conditioning Section

SEPTEMBER is the month when the heating man begins to think seriously about the problem of getting winter heating work.

. . . . Where will this winter's jobs come from? Will it be from new houses, from old customers, from new prospects, will it be mostly repair—or won't there be any business?

. . . . We believe that most of this winter's volume will come from remodeling and replacement contracts. There hasn't been any new home building to speak of this summer and there doesn't seem to be any signs of much winter construction.

. . . . This situation should not deter the wide awake contractor. In every community there are dozens or hundreds of furnaces which have been in use five, ten, fifteen and more years. A large percentage of these plants have not been inspected, cleaned, or repaired in the last three years.

. . . . The owners of these systems need new equipment which they will buy as soon as possible. They won't be satisfied with just another furnace but will want to investigate this new heat they call "air conditioning."

. . . . These owners are the best prospects any industry ever had. They want exactly the things we can give them. They want adequate, uniform heat, automatic controls, air cleaning, humidity, circulation, and other modern equipment.

. . . . Whether we sell them depends upon individual initiative, willingness to study the prospect and prescribe for his requirements and pocketbook, and a whole lot of ambition and hard work.

SURVEY SHEET

Room No.	B.t.u. Loss	C.F.M.	Stack or Pipe Area	Stack or Pipe Velocity	Ratio of Damper Setting
1	11,988	120	35 sq. in	490	100 % open
2	15,984	160	78 " "	290	60 % "
3	9655	97	78 " "	175	35 % "
4	8991	90	63 " "	200	40 % "
5	9990	100	35 " "	410	84 % "
6	11,520	115	35 " "	480	100 % "
7	8640	87	35 " "	350	77 % "
8	4800	49	35 " "	200	40 % "
9	4800	49	35 " "	200	40 % "
10	9600	97	35 " "	390	80 % "
11	10,560	105	35 " "	430	90 % "
	106,528	1069			

Note: C.F.M. calculated for a register temperature of 100 degrees

The last column is the interesting part of this data sheet. Here are entered the openings calculated for the dampers in the leaders. The text explains how these settings were determined from room velocities

A Method for Determining Proper Damper Settings when Applying a Fan

By W. E. Keist

IN remodeling work, particularly the application of fans to furnaces originally operated by gravity, the problems are many and serious. And of all the many problems encountered and oftentimes the ones which prove most troublesome are those problems of determining what register temperature to use, what velocities will be required and secured in existing leaders and stacks and how best to use dampers to get the results demanded.

These typical problems and a solution which proved satisfactory are illustrated in a remodeling job in which a gravity system was so unsatisfactory that the owner was determined to change to hot water in order to get comfort. After much argument and presenting of facts the owner agreed to allot a certain sum of money for the suggested remodeling, but the system would have to work or there would be no pay. The situation was further complicated by the fact that the amount of money allotted was just about one-third of the amount which should have been spent to get a really good job.

The general arrangement of rooms and of leaders and stacks in the gravity system are shown on the piping diagram. Registers throughout the house were either side wall or floor and no room had more than one register even in rooms where two registers should have been the very least installed. All stacks were 3½ by 10 inches. The amount of money allowed did not permit running up any more stacks so we had to get the amount of heat required by raising our register temperatures and stepping up the velocities through the stacks and dropping velocities at the registers by using large register areas.

To use a register temperature of 135 degrees would have required a stack velocity higher than desirable in our estimation so a 160 degree temperature was decided upon. Even at this temperature velocities in stacks was higher than we thought desirable, but the 12 by 15-inch registers dropped velocities in most of the rooms.

Still further difficulties were presented by the return air system because there was only enough money for two new return registers and connecting pipe. After considerable deliberation it was decided to locate one return in room 5 as this room was on the exposed side of the house and the return could be large enough to serve rooms 4 and 5 because the door between these two rooms is open. The second return was placed in the central hall where it would serve the balance of the rooms.

In rooms 1 and 3 the glass exposure is on the east and south sides thereby giving us exfiltration rather than infiltration. This enabled us to pump in sufficient heat and leave pressure relief to exfiltration.

The two returns were connected by piping to a blower unit having a filter section. The blower was sized for 1100 C.F.M. against ¼-inch static pressure at 350 RPM.

In designing the return system it was evident

that some balancing would be necessary because the return from the rear of the house had to be of appropriate size to return air from two rooms and it being longer than the short return from the hall the rear return was made 10 per cent larger in area to compensate for the added resistance. As a further precaution dampers were placed in both returns so that the air flow could be balanced as required. Actually we found that the dampers were not necessary, but placing them when the installing was done was much cheaper than installing them afterwards had they been needed.

Experience has shown that a carefully estimated and filled in data sheet is an absolute necessity for these remodeling jobs in order that no important factor be overlooked. Also, such a sheet helps the installer to visualize just what is required and how he is to get these requirements.

The Data Sheet

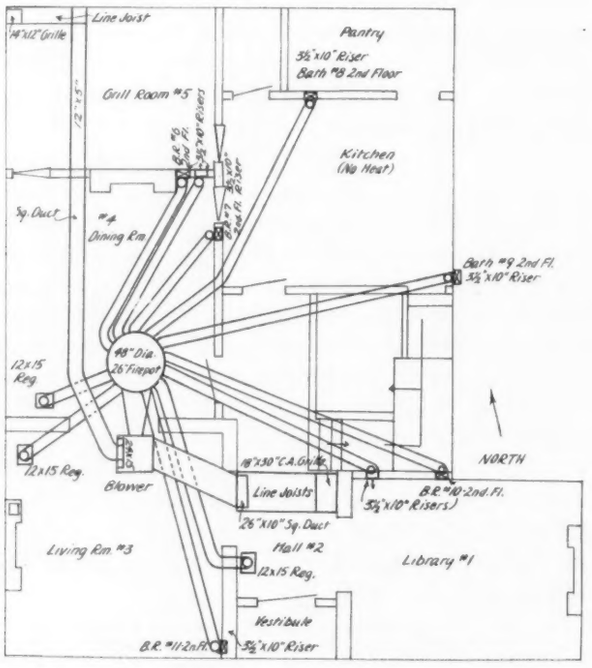
Our data sheet on this job is shown. Each room was assigned a number as the first step. Then the B.t.u. heat loss for each room was carefully calculated by the B.t.u. method and the losses placed after the room number. The third step was to fill in on the data sheet the square inches of leader pipe or stack available to serve each room. Since no changes in stacks or leaders were made this was a simple job of measuring and taking off areas from tables.

As stated, a register air temperature of 160 degrees had been selected in order to reduce velocities. The CFM. required to supply the heat loss for each room at 160 degree air was then calculated from the formula—

$$\text{CFM.} = \frac{\text{B.t.u. Loss} \times 55}{90 \times 60}$$

in which, 55 = number of cubic feet of air 1 B.t.u. will heat 1 degree
90 = difference in air temp. between 160 (reg. temp.) and room temp. (70)
60 = minutes in 1 hour.

Applying this formula to each room in turn we determined the cubic feet of air per minute required for each room.



The piping plan shows the round pipe supply and the unusual return which had to be balanced. All the leaders, stacks and registers were used in the original gravity installation

Determining Velocities

The next step was to determine what velocities we would have when these amounts of air were blown through the leaders and stacks of the system. This is determined by dividing the pipe area in square inches by 144 to get the square feet of area for the pipe and then dividing the CFM by this number of square feet. The results in feet per minute were set down as shown on the sheet. This completes our calculations, but leaves one important thing to be established.

It was said a few paragraphs back that dampers are an important feature of most of these remodeling systems. The reason is because we have no other means of sizing either leaders or stacks so we must balance the system for frictional resistance and velocity drop by using dampers placed in each pipe run.

Setting Dampers

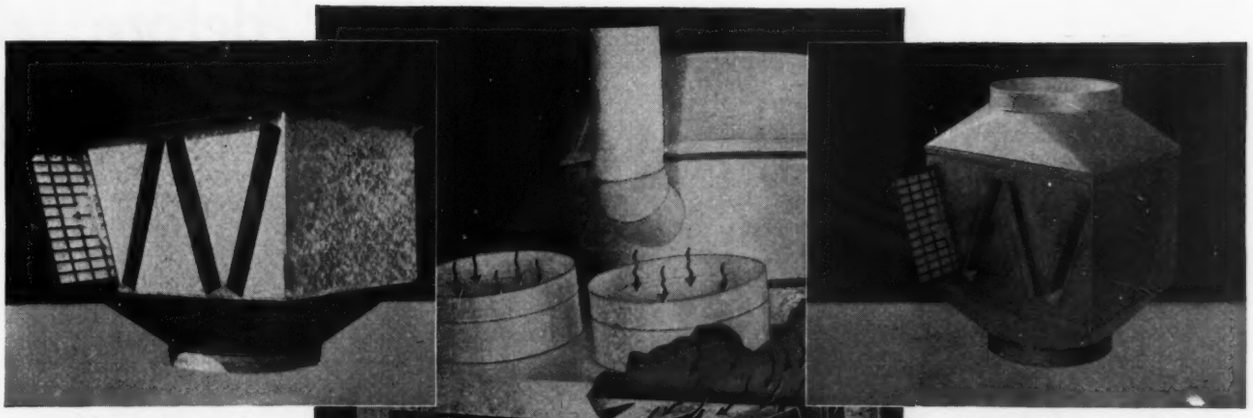
On this job a scheme was used which had been proved in previous installations and may or not be new to readers. The scheme is not proposed as a general rule to be followed because after all each installation has its own pecularities, its own pipe sizes, heat losses, exposures, CFM, and so forth. It has been found, also, that velocities up to 600 feet per minute may be maintained in the stacks providing large enough registers are used to reduce the velocities at the faces to somewhere around 300 feet per minute. Also setting dampers by the scheme used here requires some experience although not necessarily technical training.

Here is the plan.

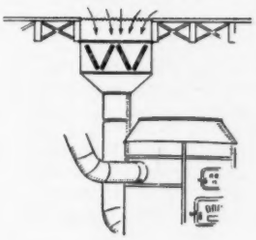
After the data sheet is all filled in we know how much air is required at the temperature selected (in this case 160 degrees). In the data sheet for this job notice that several rooms are served by leaders or stacks of the same number of square inches even though these same rooms require different CFM. On this job there were eight 35-inch pipes serving rooms requiring from 49 to 120 CFM.

Using the scheme we look for the room having the greatest velocity. In our data sheet this is room number 6 which takes 480 feet per minute or room number 1 which takes 490 feet per minute.

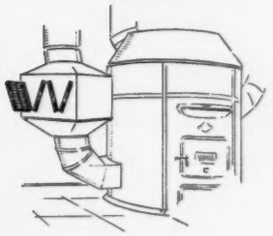
(*Continued on page* 44)



Joist installation of Dustop Filters.



Dustop Filters installed in the intake.



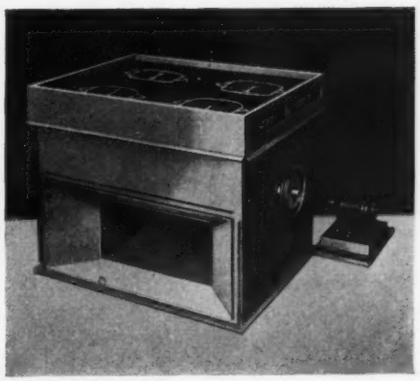
Warm-air furnace equipped with standard Dustop Filter casing.

Hit the Market where it PAYS

● Dustop gives you a *double-barrelled profit* program. Aim your first volley at the *replacement* furnace market. With Dustop filter equipment, warm air furnaces now circulate *cleanest* air. Send your second charge after every warm air furnace owner. Each Dustop installation brings immediate profit and puts you in line for *future* business. You renew this contact periodically with the sale of new Dustop filters to replace used ones, and use this repeated opportunity to profitably service the whole heating system.

Dustop high efficiency (removing 96% to 98% of all impurities from air) gives *continuous* protection from dangers of dust and bacteria to family health and damage and expense of dust-wear to household furnishings. The Dustop-equipped forced air furnace circulates clean, dust-free air 365 days of the year!

Make Dustop the cornerstone of your selling plans and cash in on the rising tide of popular demand for clean air. Write for further information today . . . Owens-Illinois Glass Company, Industrial Materials Division, Toledo, Ohio. (Dustop is assembled and installed in Canada by General Steel Wares, Ltd., Toronto, Canada.)

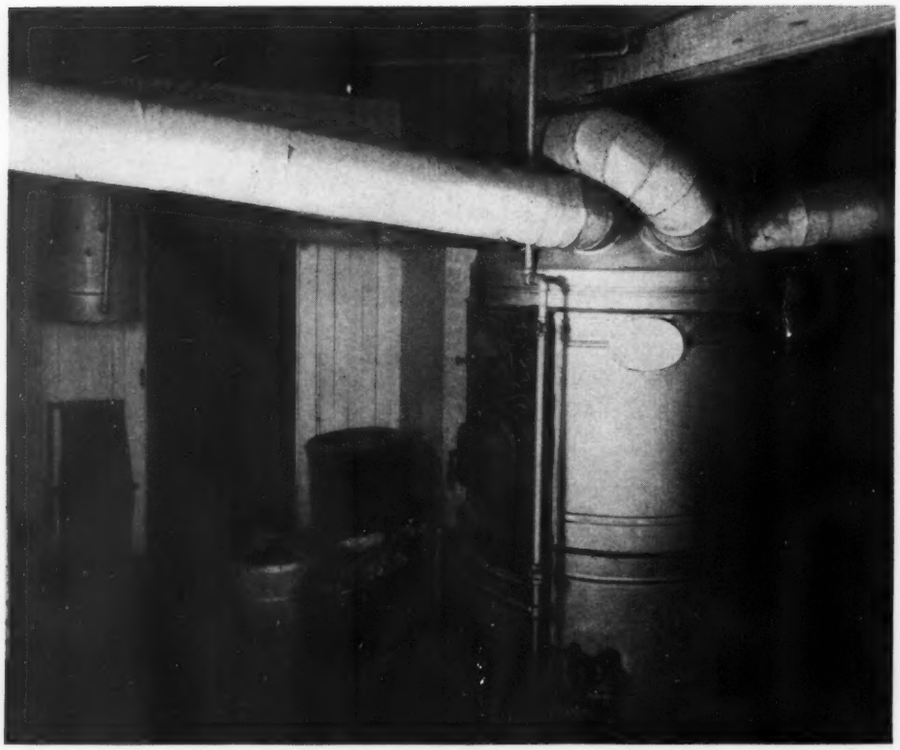


Mechanical blower equipped with Dustop Filters.

Dustop filters are sold by furnace, blower and kindred equipment manufacturers, jobbers and dealers everywhere.

OWENS-ILLINOIS AIR FILTERS

1873 • SIXTIETH ANNIVERSARY • 1933



"Before" and Brought

This is the old furnace and basement—dirty, cluttered, an eyesore—and opposite is the result obtained by remodeling. Small wonder that this owner is a booster for remodeling, automatic heat and the advantages of modernization

"MORE accurately than new installations, remodeling and replacement jobs reflect the sales and engineering ability of the contractor," states an engineer who has been long identified with the development of warm air heating.

"Sales ability is reflected because most remodeling prospects have in mind an installation using all of the old plant excepting the soot; they think they ought to get both winter and summer air conditioning for the price of a set of automobile tires; and unless the contractor is a real salesman he falls into their frame of mind and sells a minimum job when he ought to walk out with a practically new job.

"Engineering ability is reflected because the good contractor will make use of just as much of the old job as possible; he must show real design ingenuity in working the old in with the new; he must compromise the engineering he uses on new work to the specific problems of remodeling; and very frequently he must display real thinking ability in order to get around some of the problems set up by the nature of the job."

A Typical Example

This statement is borne out by the experiences of most of the contractors who have tried to build remodeling sales during the last two or three years. We might cite as an example the operations of the Schwartz Furnace Co., in Pittsburgh, Penna., to prove the point.

Last winter E. M. Power, who owns a substantial residence in a fine home district, got tired of trying to heat his house with a system which was obsolete to say the least and became convinced that a more satisfactory system could be had at a lower annual operating cost. The old warm air plant used basement air, it never heated some of the rooms to a comfortable temperature in severe weather, the fuel cost was high and supplementary heaters of the gas type had to be used in some of the rooms to make them livable.

Mr. Power has several children, including one small grand-child, and to the entire household their house is home. Forced air heating and winter air conditioning with its accompanying cleanliness, satisfaction, economy, comfort and pleasure was not a new idea with him for the members of the

Mr. Power's home is substantial, home-like and typical of the millions of houses which make up the remodeling market

"After" A Story of How Remodeling Comfort and Pleasure to a Home Owner

family had investigated and discussed this new development many times.

Several of his neighbors had installations made by the Schwartz company and all of these friends were boosters of modern heating. The sales problem, therefore, resolved itself into the presentation of a complete analysis of the troubles of the old system, proper recommendations for the equipment necessary to give as much air conditioning as Mr. Power wished to buy, and information explaining just how these results could be obtained.

Engineering Data

The heat loss calculations of this job were carefully made and showed a total of 119,070 B.T.U.'s required. Heat loss transmission factors used were as follows:

Glass	1.1	B.T.U.'s per Sq. Ft.
Wall	.25	" " " "
Ceiling	.10	" " " "
Infiltration	.02	" " Cu. Ft.

A temperature difference of 70 degrees from outside to inside, was assumed in arriving at the total requirements. This was based on a minimum of zero degrees out-doors; a condition which is seldom reached in the Pittsburgh district.

The composite heating plan shows the simplicity of the entire layout with the heater placed in a central location. Although the blower would have made possible a location in any part of the basement, it made a better job to place the unit in the approximate center of the basement.

No change was made in any of the existing second floor wall stacks; with the exception that an additional stack was installed to the bedroom above the living room. This was necessary, as this room showed a heat loss of 19,040 B.T.U's. New registers replaced the old; and the stacks were all carefully cleaned out.

New supply registers were supplied for the music room, living room and dining room on the first floor; and also installed an additional riser to the large bedroom (over the living room) on the second floor.

The Piping Plan

Starting with this, a complete duct system for the basement was then calculated and laid out with all taps and connections correct in area and design for the B.t.u. requirements figured.

The old job took basement air; hence the new layout included new returns from four locations on the first floor.

Return air for the system is taken from the living room, dining room, music room and hall on the first floor. No returns were installed from the second floor; the cold air intake located at the foot of the stair well, being sufficient to take care of adequate circulation.

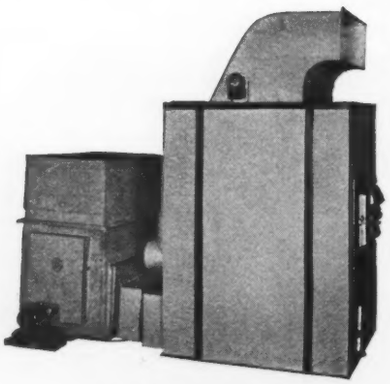
Floor registers were used in the first floor, as well as floor type return grilles. The only exception was the use of existing wall registers.

The entire installation was made with the idea

(*Continued on page* 42)

AIR CONDITIONING

at its best —



MONCRIEF AIR CONDITIONER

Includes Series "S" or Series "C" furnace as heating unit. For oil burner, hand or stoker firing.

Attractive, efficient, economical. Easy to operate. Gives the home owner every benefit of air conditioning at low cost. You can sell this air conditioner; there are so many good things to talk about.

MONCRIEF FULL AUTOMATIC AIR CONDITIONING GAS FURNACE

No detail of design or construction has been omitted which would make this an ultra fine unit in every particular. It is complete with every device for producing automatic, care-free and trouble-free air conditioning.

Burners of special Moncrief design are extraordinarily efficient and economical. The long horizontal gas travel drum is a distinct advance in burner construction.

MONCRIEF

Everything that has been devised and proved practical for efficient, economical air conditioning in the home is incorporated in Moncrief Air Conditioning Systems. They express all the quality and careful workmanship which have distinguished Moncrief products for 35 years.

They present a wide range of types with a corresponding range of prices, so that you have a chance to sell an air conditioning system or a device to practically every home owner in your business area.

NRA MEMBER U.S. WE DO OUR PART

To Help You Sell

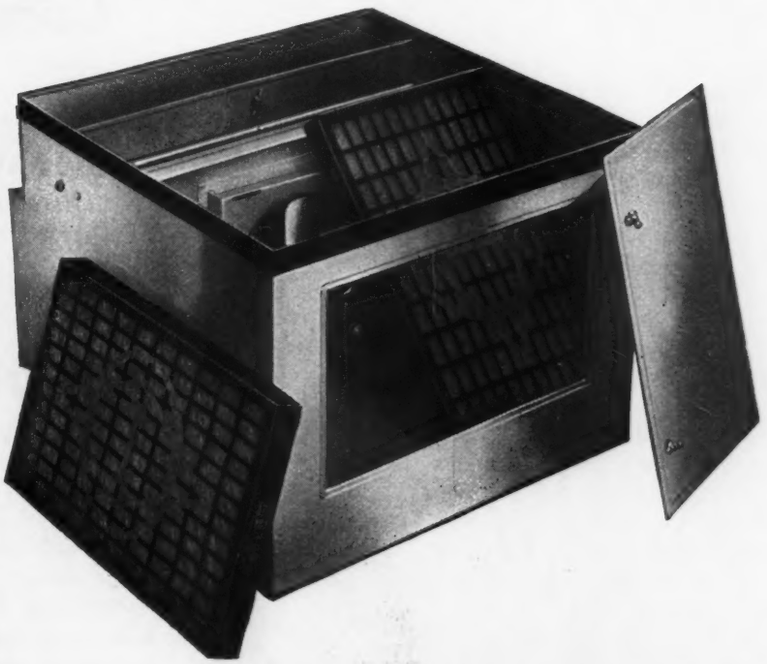
"Moncrief Air Conditioning Systems" is written to help Moncrief dealers sell home owners. Attractive, clear, convincing.

WRITE FOR A COPY

The Henry Furnace & Foundry Co.
3471 E. 49th St. Cleveland, Ohio

Branches and distributors in the principal cities

Here's Why You Can MAKE MONEY *with the* MILES *Junior* AIR CONDITIONER



THINK of all the benefits you can offer the owner of a furnace heated home:

A Miles Junior Air Conditioner will make his house equally warm all through, lower his fuel bills, and institute more healthful conditions.

In short, give him the major benefits of modern air conditioning.

You can sell and install a Miles Junior Air Conditioner for less than $100 and make a very satisfactory profit.

It's no job to install it, and you can depend on its delivering trouble-free service, without further calls on you.

Write for all the particulars. They show you how to develop an all-year source of income.

No. 22: For 18", 20" and 22" furnaces. Complete with Miles patented by-pass louvre, 2 filters, fan, and filter- and fan-boot. **$39.50** F. O. B. CLEVELAND

No. 26: For furnaces with 24" and 26" fire pots. Same construction as No. 22, but with 3 filters and correspondingly larger equipment. **$47.00** F. O. B. CLEVELAND

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MILES FURNACE FAN DIVISION
***of* The Henry Furnace & Foundry Co.**
3471 East 49th Street Cleveland, Ohio

The 22 East 40th Street Building, New York City. Kenneth Franzheim and Walker & Gillette, New York City, Architects. The Modutrol System completely governs air conditioning in both heating and cooling cycles.

AIR CONDITIONING

Completely Controlled

in the

Twenty-Two East Fortieth Building

by the

MODUTROL SYSTEM

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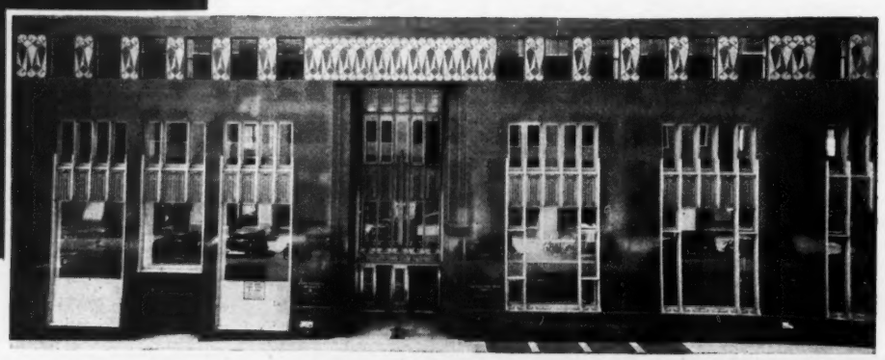
ONLY when the exact type of control equipment designed for a specific job is used can proper refrigerating, heating, ventilating, humidifying and dehumidifying functions be provided . . . The Minneapolis-Honeywell Modutrol System, because of its extreme flexibility and the balance and harmony between its integral parts, accomplishes any or all of these functions with the greatest efficiency and general satisfaction . . .The Modutrol System is tailor-made for your needs, for old buildings or new, large or small. Let the Minneapolis-Honeywell engineer in your city show you why its low original cost, economical operation and its inherent accuracy and control qualities make it the most advantageous system available. . . Minneapolis-Honeywell Regulator Company, 2726 Fourth Avenue South, Minneapolis, Minnesota. Branch and distributing offices in all principal cities.

MINNEAPOLIS HONEYWELL

Control Systems



Atomization—What Is It?

By EUGENE PARKER

I HAVE had occasion a short time ago to listen to a discussion by a group of salesmen, based upon their understanding and knowledge gained from an article on combustion or so-called "Atomization."

Needless to say, each treated the subject with some vehemence and a great deal of satisfaction, and each contradicted the other. Each insisted that he alone was right and began a long quotation of articles he had read on the subject. In the end all were confused and the subject became extremely muddled with no definite conclusion arrived at. It seemed hopeless to expect that if these men whose aim is to sell could not agree on the fundamentals involved, it would be impossible to send them out to convince a prospective buyer who most of the time is totally ignorant of burner principles and who buys only on hearsay.

What Atomization Is

The subject of "Atomization" in the sale of oil burners seems to permeate every sale and somehow must be reckoned with as a factor as far as the salesman is concerned.

In my opinion the term "Atomization" is a misnomer.

Let us consider fundamentals involved.

An oil burner is purely a mechanism and its prime function is to effect certain physical changes in oil, converting it from the usual solid form into a state in which it will quickly ignite and readily burn.

The final purpose of this process of combustion is the liberation of heat.

Any mechanism that accomplishes this certainly must be termed an "oil burner," but it has become general practice to designate by the term an aggregate of mechanism fabricated for the purpose of not alone changing the physical characteristics of the oil itself but also controlling the process of burning.

Means for control may consist of a simple valve which more or less requires manual attention or it may consist of a very intricate and elaborate system interlocking the burner proper with the object which is to be heated, so as to automatically control and regulate the entire program of operation, and also with various other pieces of equipment to secure the utmost in durability, dependability and economy.

Therefore, in repetition, an oil burner is simply a mechanism that has been designed to change the physical characteristics of oil from a solid state to one that will quickly ignite and readily burn.

At present only two methods are employed to accomplish this result.

1. "Atomization."

This term of expression is unquestionably a misnomer.

Actual "Atomization" is not intended, neither for that matter does it occur. More properly described, what is meant and really intended should be technically described as molecularization, which is a reduction of the solid fuel oil to very fine minute particles. This can be observed visually in the form of mist or spray and the more minute these particles become in this process or the finer the mist or spray the better will be the final product-combustion.

2. Vaporization.

This implies changing oil from a liquid state to a vapor state, and only one process is available and is accomplished by the application of sufficient heat to the oil to cause a change to occur in its state.

As a principle many of the leading engineers have discarded this process because of its chief drawback, the forming of carbon and the "choking up" and gumming with residue of the principal oil containing parts which have been subjected to intense heat which is necessary to require the physical change in the oil.

How You Get Atomization

While it may be argued that this process or system has certain other virtues or advantages, they are inconsequential or unimportant and their value is insufficient to offset the principal drawback of carbon formation and the "choking up" and gumming process which is not only rapid, but is progressive and cumulative.

"Atomization," so-called, can be accomplished in various degrees and by different methods. It is quite easy to make a complete list.

A. "Atomization" by submitting oil to an impact such as a current of air or steam.

B. "Atomization" by imparting to oil a rotary motion within a container, which oil when released from or allowed to escape from confinement of the container, and while still under the effect of rotation, will have a tendency to "atomize" as the particles of the oil separate from each other, due to the action of centrifugal force.

C. "Atomization" by conducting the oil to a cup that is in rotation and which has a conical shape allowing the oil to be thrown off the periphery of the cup in a very thin film. This film of oil upon impact with the surrounding air then further reduces the oil to minute particles.

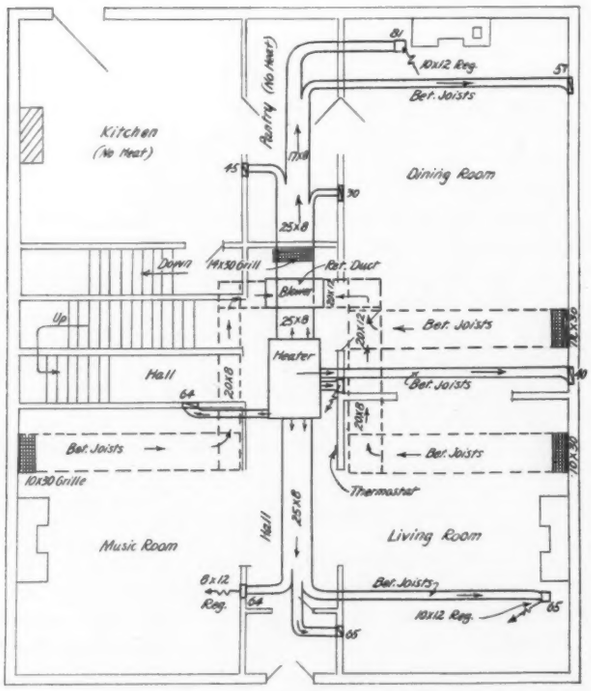
D. "Atomization" by causing oil under high pressures to escape from confinement through a very small opening or orifice, the stream of oil then being further divided upon impact upon the surrounding air when it is pulverized.

E. "Atomization" by directing a stream of oil on to an impedence called a "baffle," the force of impact tearing it apart, and upon further impact with the surrounding air still further reducing its bulk.

F. "Variations and Combinations" of the methods given above are indeed possible and as a matter of fact often employed either with or without intent by the user.

The final object in any or all events is to increase the ratio of "Surface to Bulk," so that a maximum amount of air, may at one time be in contact with a given amount of oil, and the final result which is combustion shall therefore take place rapidly.

Before and After [*Continued from page 37*]



An entirely new basement piping system was installed, but the old stacks and registers were used. The return system was revamped with all air from the first floor. Some new registers were used to heat rooms formerly cold

of assuring the least amount of alterations and inconvenience to the customer.

So much more room was made available after the new installation was completed, that the owner became enthusiastic and had the entire cellar done over in beautiful red tile. The right-hand side of the basement (running the full length below the living room and dining room) is used as a billiard and game room. Old wooden partitions were torn down; and the equivalent of another floor has been added to the living quarters for the family.

Heater Unit

The heater selected is a Keystone Air Conditioning unit, a special steel furnace developed by the Pennsylvania Engineering Corporation of New Castle, Pa.; equipped for gas operation at an input of 160,000 B.T.U.'s. The unit is housed in a square casing with all warm air outlets tapping off the top. All distributing ducts are rectangular in form, although individual round pipe leaders could have been installed if desired.

Blower and Filters

Part of the assembly includes a variable speed blower, encased in a special boiler plate housing and operated at 1,548 C. F. M. The air outlet from the blower is connected to the rear of the furnace casing. A filter compartment in the blower hous-

ing contains three 20 by 20-inch Dustop filters. These can be replaced at a very nominal cost as they become filled up.

Humidifier

An automatic humidifier of the spray type is built into the assembly. Humidity is controlled by a humidistat located in the hall on the first floor.

FIGURED BY AB CH'K'D. BY BF DESIGNED FOR E.M. POWER, 3803 WELLESLEY AVE. CONTRACTORS
SHEET NO. 1 DATE OCT. 13, 1932
180° CEILING

NO.	ROOM	DIMENSIONS	CUB. CONT.	C.F.M.	EQUIV. S.A. SURFACE IN A.	COLD AIR	T.D.¹	T.(26)	CEILING FLOOR (.4)	T.(Da)	TEMP. DIFF.	B.T.U. LOSS
1	MUSIC	14X16	2240	64			48	252		3360	70°	12810
2	LIVING	19X16⅔	2310	65			98	257		3465		13020
3	DINING	18⅔X21	3085	81			60	295		4508		16170
4	KITCHEN	12⅔X14	1750	56			99	216		2625		11270
5	PANTRY	6X12⅔	750	19			13	47		750		2870
6	HALL	6X22	1320	41"			28	32		1320		4550
7												
8	(9'0" CEILING)			60,690 B.T.U. 1ST FLOOR SUB. TOTAL AS REQUIRED								
9												
10	BR #1	14⅓X16⅔	1827	64			50	207	203	2740		12740
11	" #2	18⅔X16⅔	3058	95			65	295	340	4584		14040
12	" #3	13⅔X16⅔	1760	57			33	219	196	2640		11480
13	BATH	6X9⅔	513	12			6	98	57	513		2450
14	BR #5	9⅔X14	1197	95			33	179	133	1795		9180
15	HALL	6⅔X14	1278	INCLUDED ABOVE				45	192	1278		3570
16			+7896	544								114,070
17		NO. 527 KEYSTONE UNIT = 160,000 B.T.U. INPUT										
18		C.F.M. REQUIRED = .013 x 114,070 = 1548 C.F.M.										
19												

The data sheet shown above contains the engineering history of the remodeled installation. Such data sheets are prime requisites for successful remodeling work

This is connected to a solenoid water valve; and automatically turns the water supply on or off as the humidity content in the house varies. Percentage of humidity can be changed to suit the individual requirements by simply setting the humidistat to the desired point.

Operating Cycle

When the thermostat calls for heat, the electric motor opens the gas valve. The gas is then ignited from the constant flame of the pilot light and heat immediately starts building up in the furnace. At the same time contact is automatically established in the blower circuit; and the blower starts operating at the same time. Simultaneous contact is also established with the humidifier circuit; thereby bringing the spray into immediate action.

This installation has made a dissatisfied furnace owner a booster for the advantages which intelligent remodeling can bring.

Setting Dampers [*Continued from page 34*]

We set the dampers for these two rooms 100 per cent open.

Then we take each room in turn and determine what percentage of the velocities of either room 6 or 1 the velocity of the room is and set our damper this percentage open.

For instance, let us take room number 7. Our data sheet shows a velocity required for room 7 of 350 fpm. This 350 fpm is $= 350 \div 490 = 70$ per cent of 490 so we set the damper for room 7 as nearly 70 per cent open as possible. The same procedure is followed with each room and the percentage openings put down in the right hand column.

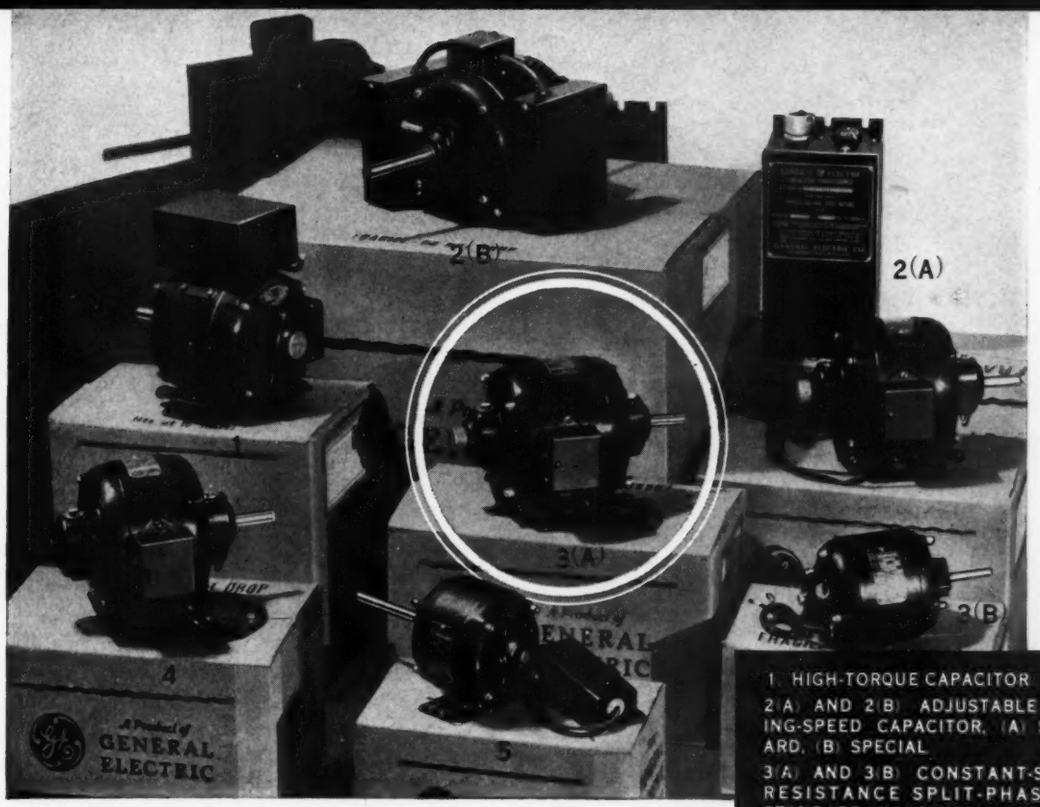
In using this scheme it should be remembered that length of duct must be considered and where ducts of about the same size take damper settings of about the same setting a longer run should be opened slightly more than a shorter run. This rule, in turn, may be tempered by the experience which indicates that length has little influence in fan jobs unless the run is more than 25 feet long.

Balancing Runs

On the installation shown it will be noted that all the longest runs are to protected rooms while the severely exposed rooms are off the short runs. This fact served to equalize the need for setting dampers for duct length. Exactly the opposite condition is frequently encountered and then adjustment for length is highly essential.

How well this plan worked out is indicated by some observations made on a day when the outside temperature was down to 22 degrees above zero with a fairly high wind. The system worked well with each room getting the right amount of heat. No adjustments of the dampers from the first settings were required and all rooms showed within 2 degrees of one another.

PACKAGES OF POWER FOR AIR CONDITIONING



1. HIGH-TORQUE CAPACITOR
2 (A) AND 2 (B) ADJUSTABLE VARYING-SPEED CAPACITOR, (A) STANDARD, (B) SPECIAL
3 (A) AND 3 (B) CONSTANT-SPEED, RESISTANCE SPLIT-PHASE, (A) STANDARD, (B) SPECIAL
4. CONSTANT-SPEED POLYPHASE
5. PERMANENT SPLIT-CAPACITOR

WHERE CONSTANT SPEED IS REQUIRED . . . for domestic air conditioning applications, exhaust fans, garage heaters, barn ventilators, and propeller fans of all kinds—General Electric recommends the Type KH constant-speed, resistance, split-phase motor for single-phase circuits (No. 3A above).

This motor is quiet because it is designed and built to be quiet. Its liberal and coordinated design, refined manufacturing tolerances, and balanced parts are your assurance that it will "deliver the goods" quietly and satisfactorily over a long operating life.

Our fractional-horsepower motor specialists, located in principal cities, will be glad to tell you more about the Type KH motor, and about our complete line of electric equipment—transformers, control, etc. General Electric, Schenectady, N. Y.

Check those fractional-horsepower motor applications concerning which you would like further information, and return this coupon to the nearest G-E office, or to General Electric, Dept. 6-201, Schenectady, N. Y.

Air Filters
Air Washers
Atomizers
Automobile Heaters
Barn Ventilators
Bathroom Heaters
Blowers (all types)
Booster Fans
Bus Heaters
Cabinet-type Units for heating, cooling, humidifying, dehumidifying, washing, and filtering air
Domestic Air Conditioners
Exhaust Fans
Fans
Forced Draft Units
Furnace Fans
Garage Heaters
Humidifiers
Incubator Fans
Industrial Air Conditioners
Kitchen Ventilators
Paint Spray Booth Fans
Propeller Fans (all types)
Railway Car Air Conditioners
Railway Car Precooling Units
Refrigerator Fans
Room Coolers
Rotary Roof Ventilators
Schoolroom Heaters
Special Devices
Unit Coolers
Unit Heaters
Unit Ventilators
Window Ventilators

210-218

GENERAL ELECTRIC

Setting Dampers [*Continued from page 34*]

We set the dampers for these two rooms 100 per cent open.

Then we take each room in turn and determine what percentage of the velocities of either room 6 or 1 the velocity of the room is and set our damper this percentage open.

For instance, let us take room number 7. Our data sheet shows a velocity required for room 7 of 350 fpm. This 350 fpm is $= 350 \div 490 = 70$ per cent of 490 so we set the damper for room 7 as nearly 70 per cent open as possible. The same procedure is followed with each room and the percentage openings put down in the right hand column.

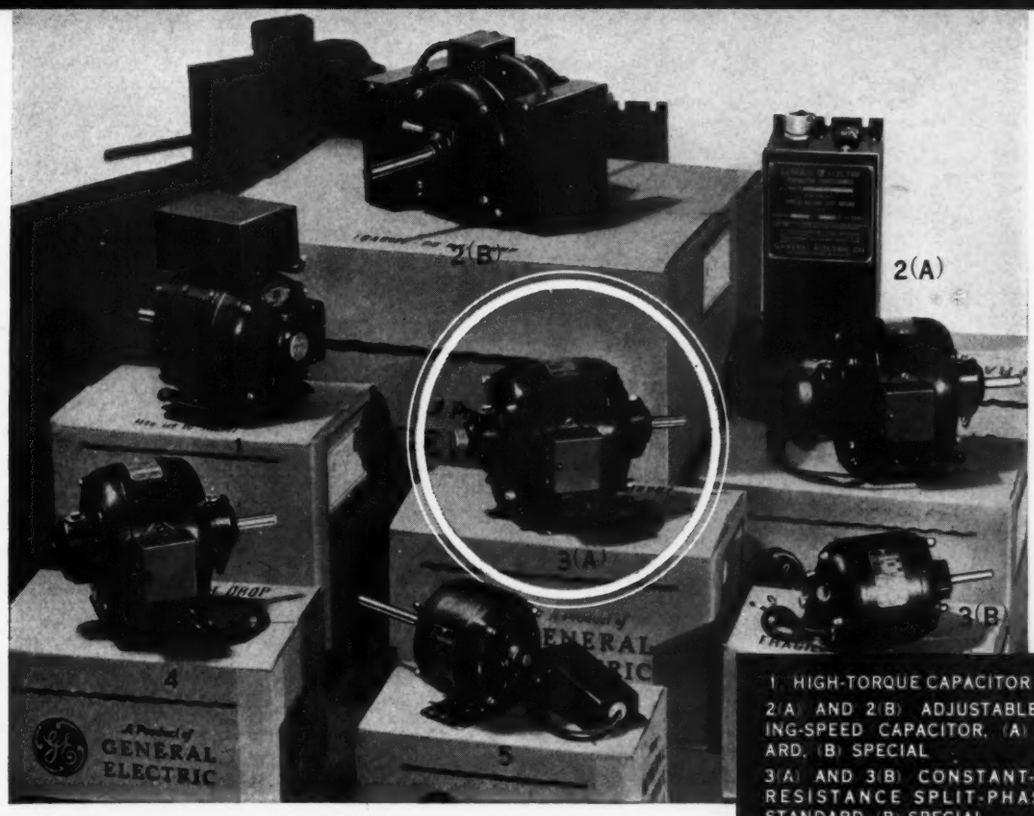
In using this scheme it should be remembered that length of duct must be considered and where ducts of about the same size take damper settings of about the same setting a longer run should be opened slightly more than a shorter run. This rule, in turn, may be tempered by the experience which indicates that length has little influence in fan jobs unless the run is more than 25 feet long.

Balancing Runs

On the installation shown it will be noted that all the longest runs are to protected rooms while the severely exposed rooms are off the short runs. This fact served to equalize the need for setting dampers for duct length. Exactly the opposite condition is frequently encountered and then adjustment for length is highly essential.

How well this plan worked out is indicated by some observations made on a day when the outside temperature was down to 22 degrees above zero with a fairly high wind. The system worked well with each room getting the right amount of heat. No adjustments of the dampers from the first settings were required and all rooms showed within 2 degrees of one another.

PACKAGES OF POWER FOR AIR CONDITIONING



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Railway Car Precooling Units
Refrigerator Fans
Room Coolers
Rotary Roof Ventilators
Schoolroom Heaters
Special Devices
Unit Coolers
Unit Heaters
Unit Ventilators
Window Ventilators

210-218

GENERAL ELECTRIC

"Genuine Detroit" No. 425
TEMPERATURE REGULATOR

NOW YOU CAN SELL A DEPENDABLE REGULATOR AT A LOW PRICE!

IN the "Genuine Detroit" No. 425 Temperature Regulator you can offer your customers accurate, close temperature control at a remarkably low cost and good profit to you. It operates noiselessly, yet it provides ample power to operate the dampers.

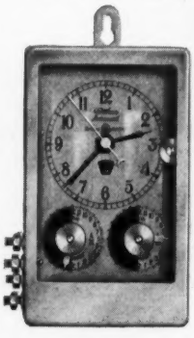
So simple to install that any workman can connect the two-wire circuit. Operates on lighting current and delivers accurate control.

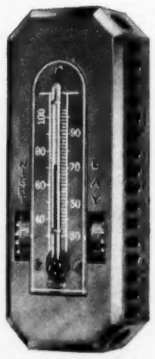
Every hand-controlled furnace owner is a prospect for it!

No. 426 Regulator for night and day control, includes a two-blade Thermostat and an electrically operated clock switch with Telechron movement. This regulator automatically starts heating in morning after maintaining required heat during the night.

Write today for Bulletin No. 53.

No. 456 Clock Switch





No. 455 Night and Day Thermostat

Licensed under Patent 1,785,741 covering combination hook-up of Humidistat and Temperature Control

DETROIT LUBRICATOR COMPANY

Trumbull, Lincoln, Marquette & Viaduct
DETROIT, Mich., U. S. A.

Canadian Rep.: Railway & Engineering Specialties, Ltd.,
Montreal, Toronto & Winnipeg

Lubricators • Carburetors • Valves
Automatic Controls for temperature, pressure, humidity
Refrigeration, Oil Burner and Heating Accessories

● YOUR UNIT DESERVES "GENUINE DETROIT" CONTROLS ●

ASSOCIATION Activities

Tri-State Meeting

A meeting of the Sheet Metal and Roofing Contracting representatives was held in Dallas, Texas, at the Baker Hotel, Sunday, August 6, 1933, 10:00 A. M., for the purpose of adopting a code in connection with the National Industrial Recovery Act and for association organization. There were approximately 150 in attendance, representatives coming from Louisiana, Oklahoma and Texas. Harry Stanyer, President of the National Association Sheet Metal Contractors, acted as Chairman.

After views were obtained on the matter of tri-state organization, it was decided to first perfect respective state associations and later, if found to the interest of all concerned, formulate a south-western division. During the discussions on organization the following comments were made by some of the representatives: Ray Dolan of Oklahoma City—"Oklahoma does not have a State organization. We have Oklahoma City organized including the trade territory. So has Tulsa tried district rather than State organization. We have letters from 30 or 40 surrounding towns in and around Oklahoma City who are anxious to know the outcome of this meeting and want us to bring back all the information we can for the betterment of the sheet metal and roofing industry.

R. J. Holzer of New Orleans—"We should first organize a State organization, later go in for a tri-state organization but am inclined to wait until action is taken by the entire state." E. O. Wood of Fort Worth—"Most of you know that throughout the period of the last few years some have taken an active part in trying to organize Texas. We have always felt it our only salvation—this statement has been made in local meetings time after time. Our volume on any and all classes of business is small and if we continue to give it away we will remain just where we have been. It seems that we now have the power to make it function." H. Seline of Houston—"Operating under the national code will be a great thing—not only will it give us something to operate on but wherever we go it will be on an even basis. We will know how to operate. In our own city we have a splendid organization and think we have a majority—they are 100 per cent with us." Otto H. Buass of Austin—"I am strictly in favor of organizing a State Association. I believe it necessary for self preservation. Collective bargaining for the men is growing to be a tough proposition. The men are already wanting even more than war time prices—not satisfied—want to go about 25 per cent—there has been no giving in at all with them."

After these discussions the Chair offered to hear from anyone opposed to state organization but no one took the floor. A motion was then made and seconded to organize a state association at this time.

The meeting adjourned for a forty minute luncheon period.

After the meeting was called to order at one o'clock the Chairman asked for dues of $5.00 by each representative.

Mr. Crampton read the proposed Code of Fair Competition for the Sheet Metal and Roofing Contracting Industry prepared by the National Association of Sheet Metal Contractors of the United States, Inc. At his suggestion, and suggestions from the floor, certain minor changes were proposed to be made in the Code.

Vote was taken and the Code, substantially in the same form as submitted by the National Association, was unanimously adopted.

Election of officers: Elected by acclamation, the officers consisting of President, four Vice-Presidents, Secretary-Treasurer, and seven Directors, are as follows:

President, C. A. Keech, Fort Worth.

First Vice- President, C. O. Johnson, Dallas.

Second Vice-President, W. R. Etie, Houston.

Third Vice-President, C. H. Reubeck, Waco.

Fourth Vice-President, Otto H. Buass, Austin.

Secretary-Treasurer, Harry Stanyer, Dallas.

Board of Directors—E. O. Wood, Fort Worth, Chairman; H. G. Wendland, San Angelo; E. D. Hartell, Jr., Galveston; G. F. Germond, Sr., Waco; Otis Massey, Houston; Fritz Walsh, Denison; Paul Woodruff, Wichita Falls.

The next meeting will be held at Waco the first Sunday after the Secretary-Treasurer receives notification of the approval of the Code by the President.

* * *

N. A. S. M. D. Meeting

George A. Fernley, Secretary of the National Association of Sheet Metal Distributors, Philadelphia, announces that the 1933 meeting of the organization will be held October 18 at the Palmer House in Chicago.

The meeting will be held in conjunction with the annual convention of the National Hardware Association.

According to A. W. Howe, President, a code committee is now at work drawing up recommended practices for the members in accordance with provisions of NIRA. The code is nearly complete and early submittal to Washington is looked for.

* * *

Indianapolis Picnic

The long heralded annual picnic of the Indianapolis local association was held according to advance publicity July 29 with some 300 members, families and guests. State President C. C. Sieb and Mrs. Sieb attended.

There seems to have been two events of importance—the baseball game between Stinky Tinks and contractors in which the Stinky Tinks finally bowed to old age and the fried chicken dinner which didn't last long enough.

* * *

Chicago Picnic

The Master Furnace and Sheet Metal Contractors of Chicago held their annual picnic on August 6 in one of Cook County's forest preserves. About 150 members, their families and guests attended.

Plenty to drink, lots of entertainment, and a baseball game between contractors and salesmen livened up the day.

* * *

New York Enlarges

A. Hesse, Secretary of the New York State Association, reports that within recent weeks local associations have been organized in Albany, Troy, Schenectady, Gloversville, Amsterdam and Johnstown. This increases the New York State membership about 50 per cent.

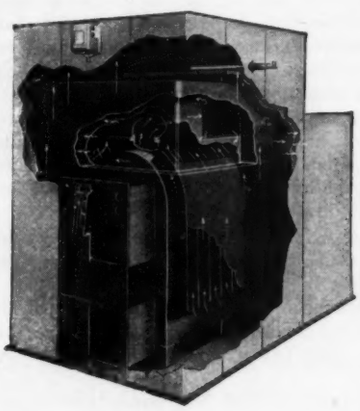
New PRODUCTS

Premier Oil Furnace

The Premier Warm Air Heater Co., Dowagiac, Mich., announces the Automatik Furnace—especially designed for oil burners and stokers.

The unit—made of welded steel and built in two sizes—is designed for all types of burners. It is so designed that it can be handled through average width door openings.

An extra large combustion chamber provides ample space for complete fuel burning under all conditions. A feature is the round "tunnel top" which is said to increase the heat conduction speed and efficiency. Round baffle plates provide for air circulation directly against these surfaces. Finned extended surface radiation is used.



Combustion gases pass through the heat exchanger, which provides large surface areas for rapid heat transfer to the casing air. The flue gases travel in a general horizontal spiral toward the stack to provide good combustion conditions.

Complete data and price information will be furnished upon request addressed to Premier Automatik Furnace, Premier Warm Air Heater Company, Dowagiac, Mich.

◆

Schwab Steel Furnace

The Schwab Furnace and Mfg. Co., Milwaukee and Cedar Grove, Wisconsin, announce the 800 series all steel furnace embodying new and improved features of construction and design.

The furnace is all steel, electrically welded into one piece, is smoke and gas tight, has a built in radiator booster, large size humidifier, and a large prime heating surface. Copper bearing steel is used throughout. The firepot is deep and straight, of box type, providing a grate area equal to fire pot area. Sizes range from 500 to 2200 square inches of warm air leader area.

Complete information on design and characteristics together with prices and purchase plan have been included in a bulletin. Contractors can get copies by writing the company. The address is 522 West Cherry St., Milwaukee, Wis.

◆

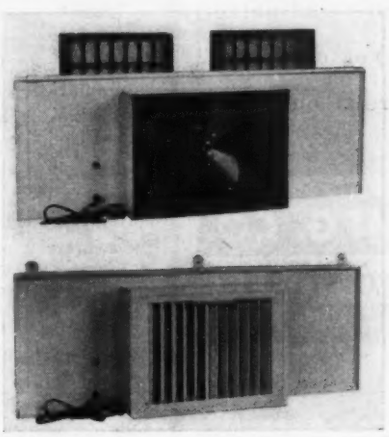
Coda Ventilator

A new type window ventilator, in which is combined the filtering action obtained with Owens-Illinois filters and a propellor type fan rated 200 C.F.M., all housed in a special unit which fits into any two-section window, is announced by the Toledo Wire Products, Inc., Toledo, Ohio.

"This unit," states I. M. Brevik, Vice President, "was designed to provide a window ventilator which gives control over outside air circulation. The frame has extensions which fit any width window. The unit containing the filters and fan requires only 14 inches of depth.

"The louvres are adjustable so that the flow of air from the fan can be directed to the room and occupant's requirements. The ventilator is guaranteed to exclude 98 per cent of all dirt, dust, soot, pollen and bacteria. Snow, rain and sleet are also excluded.

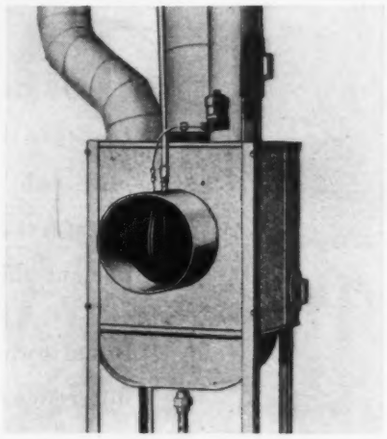
Full information and literature can be obtained from the company.



New Humidifier

A new type air conditioning system has just been announced by the King Ventilating Company, Owatonna, Minnesota.

The smoke pipe at the ear of the boiler or furnace is replaced by the



SunAire Unit. A smoke pipe is run direct from the unit to the chimney. As the heat passes into the unit it is directed into a U shape tube, which is sealed so that none of the flue gases can reach the inside of the tube. The U-tube is connected to two grills in the floor above, one at each end, the first as a supply; the other as a return.

A copper tube is run from the city water line to a coil placed in the path of the flue gases. In this way the water is heated before going into a spray nozzle

◆

Wick Humidifier

A wick type humidifier consisting of a two section cast aluminum pan which fits on top of the furnace radiator and special stand-up type wicks along the edges is announced by Weyl and Weyl, Development Engineers, Dearborn, Mich.

The aluminum pan is fastened to the radiator and connected to a drip type water supply and drain to maintain a constant, but adjustable, water level in both pan sections. The wicks are of bronze reinforced asbestos and are placed upright in the pans. The evaporating surface offered is 600 sq. in.

Details are contained in a leaflet which can be obtained from the company.

With Our Readers . . . . . .

Trade-In Selling

WE have all been of the opinion in this great and necessary industry of ours that furnaces could only be sold—

1. For a new home or building.
2. In an old house without a central heating system (there are 12,500,000 stove heated homes).
3. In an old house where the furnace is burned out beyond the state of repair.
4. In an old house where the furnace is too small for the job.

To too many of us this list just about covers the possibilities for new furnace sales.

But how many of us realize or appreciate the vast market that lies before us in the air conditioning field? Today, when many of us think of air conditioning we trust that here and there a prospect will develop in connection with those furnace installations that are not satisfactory, in a new home, or where a replacement is necessary because the furnace is worn out. While this may be true we should remember that every gravity furnace job that needs attention is a prospect for air conditioning. Also, figures show that aggressive furnace contractors are promoting air conditioning in connection with the furnace replacement market. But let us bear in mind that the furnace replacement market, generally speaking, will take care of itself. That is, where furnaces are to be replaced they will be replaced either by new gravity furnaces or air conditioning units.

So in considering the sale of air conditioning units let us forget the replacement market and consider that vast market of about 8,000,000 furnace installations which are satisfactory gravity installations and tell the owner about the benefits of an air conditioning system.

Assuming that we have at our command the story of the benefits of air conditioning and we pass this information on to the owner, does it really make much difference whether the owner must have a new furnace or if he has a satisfactory gravity job?

We want him to want air conditioning. We must make the owner want to know how air conditioning can be adapted to his home.

So we become trade-in conscious. We say to Mr. Owner that this air conditioning unit will cost you so much money and we will allow you so much for your present furnace.

If this idea seems radical, think how many automobiles could have been sold in the last twenty-five years if the trade-in feature had never been popularized. None of us know the number but unless this method of merchandising had been accepted by the automobile industry it goes without saying that many of us today would be more dependent on shoe leather than on automobile tires.

George Boeddener.

Miscellaneous Reports

A large number of requests for information have been received from individual readers or firms who operate in communities where nothing has been done about a local association or a joint local code.

Most of these inquirers want to know what plan they should follow and we have advised them to sign the blanket code as a local stimulant and to then get in touch with the state secretary. Where there is no state association write the secretary of the National Association of Sheet Metal Contractors, W. C. Markle, Secretary, 429 Four Avenue, Pittsburgh.

Contractors in towns too small to have local organizations or in towns where the local organization has failed and cannot be revived can participate in the formation of a code for our industry by sending their suggestions on code provisions to their state or national association.

News Items . . . . . .

Rudy Lowers Prices

Rudy Furnace Co., Dowagiac, Mich., announced price reductions on its standard residential furnaces ranging from 20 to 23%.

"Revisions in manufacturing and selling methods, which have been in preparation for months, have reduced operating costs sufficiently to absorb a major portion of price reductions," stated A. F. Frazee, general manager, "and anticipated sales improvement is expected to offset substantially higher wages, salaries and material prices.

"Should current sales betterment continue through Fall," he said, "accelerated operations and increased employment will be necessary in our factories.

"Company's unit furnace shipments for the four months through July were 29% better than for corresponding 1932 period while unit air conditioner shipments were 71% better. In each month since March, shipments have exceeded the corresponding 1932 month," he declared.

◆

McIlvaine Moves to Chicago

As part of their 1933 expansion program, the McIlvaine Burner Corporation, which for the last five years has had its headquarters in Evanston, Illinois, has moved its general offices to 663 West Washington Boulevard, Chicago. The Evanston Branch which has handled the retail sales for the North Shore Suburbs, will probably be taken over by a distributor. The corporation will transfer to the new Chicago location, its dealer Training School and Engineering Department.

◆

Copper at the Fair

A number of new and highly important developments in the field of copper and copper alloys are revealed in the exhibit of the Copper & Brass Research Association in the Mineral Industries Pavilion of the General Exhibits Group at A Century of Progress International Exposition.

New finishes designed to meet architectural whims and special alloys of copper to fill demands in general manufacturing are shown. Crystal-cote, a thin and flexible coating of glass on copper, to preserve untarnished the original luster of the metal and a new copper sheet, as thin as paper, are shown.

The central figure of the exhibit is a small house of wood construction on which there is every possible form of copper roof. One section is made of plain copper. Another is lead-coated copper, showing the appearance of the heavier metal may be attained in sheet metal construction. Another section shows copper with a green patina produced artificially. The interior of the house is finished with the thin copper sheet attached to composition wallboard, giving an unusual decorative effect.

◆

Allsteel Appoints Distributer

The Allsteel Press Company, 12015 S. Peoria St., Chicago, manufacturer of the Verson Allsteel line of punch presses and sheet metal working machinery, has appointed E. H. Merrick, Cook Building, Cleveland, Ohio, exclusive representative in the Cleveland district.

News Items . . . . . .

Lennox Business Improves

John Norris, Assistant Sales Manager of the Lennox Furnace Co., Marshalltown, Iowa, writes that the company has signed the NRA code and that in the last five weeks more than 23 per cent additional employees have been added to the pay rolls. In addition, wages of some foremen have been raised and the hourly wage of many employees has been increased.

"Business for the company," says Mr. Norris, "has picked up tremendously in the last few weeks. We are working a full crew in every department full time up to the limit of the hours allowed us by the code of the National Association of Furnace Manufacturers, now before the NIRA. During the past five weeks period orders received have amounted to just two and one-half times the orders received during the same period last year. Our biggest problem now is to build furnaces and air conditioning units as fast as we receive orders for them."

The company has issued its new complete loose leaf heating equipment catalogue for 1933 and 1934. Copies can be obtained by writing the company.

◆

O'Neil to Manage Milcor New York Office

Announcement is made by Louis Kuehn, president of the Milcor Steel Company, of the appointment of Thomas O'Neil as manager of the New York office, effective August 1, 1933.

Mr. O'Neil will be in charge of the Eastern District. He is widely known among architects, general contractors and dealers throughout the territory, having taken care of the building material trade for the past twenty years.

It was Mr. O'Neil who helped introduce the now famous Milcor line of fireproof building materials back in 1931 and he has represented Milcor for many years in the sheet metal line, including eaves trough, conductor pipe, corrugated roofing and siding, etc.

◆

Motor Wheel Improves Line

Two factors are cited in explanation of the interest being displayed at this time in the MW Automatic Oil Burning Weather Control Unit, a complete, unified forced warm air heating plant manufactured by the Heater Division of Motor Wheel Corporation. The first of these is the naturally increased interest in improved heating equipment invoked by the impending Fall season.

The second factor is the addition by MW of new optional equipment with which the unit may be converted into a complete air conditioning unit. Consisting in itself of an oil burner, heat chamber, blower, humidifier and thermostatic controls, the unit may now be had with air washer and filter equipment and, where the temperature of the water is not sufficiently low to insure dehumidification in Summer, a cooling unit may also be added to bring complete all-year air conditioning.

Literature describing these units may be obtained from the Heater Division of Motor Wheel Corporation, Lansing, Michigan.

◆

Hanisch With Republic Metals

Bob Hanisch, who has spent a great number of years in the Sheet Copper industry, and last with Revere Copper and Brass, Inc., is now connected with Republic Metals, Inc., 2222 W. 49th St., Chicago.

News Items . . . . . .

Farquhar—Ramquist Join Forces

Dave Farquhar, long identified with Tuttle and Bailey, and William Ramquist, also of T and B, have joined forces and opened an office at 407 South Dearborn St., Chicago.

The new firm will act as sales representatives for accessories in the heating and allied fields.

The company name is the United States Register Co., of Chicago, and their first product is registers and grilles of the U. S. Register Co., Battle Creek, Mich.

◆

Air Conditioning the Tribune Tower

In a recent editorial the Chicago Tribune announced that the Tribune Tower is to be completely air conditioned. The newspaper's pressrooms and and some of its offices have been artificially cooled for several years and it proposes to take another forward step in this advance and air condition the entire building.

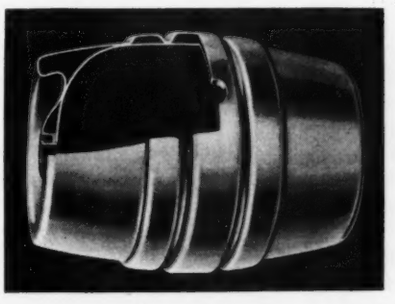
The editorial in part, stated: "Air conditioning is in its first stage, but science and invention are at work upon it and progress will accelerate. . . . We do not predict the pace air conditioning will achieve, but we do not doubt that, before another generation has arrived, not only all important buildings, public and private, will be air conditioned, but private dwellings, even those of modest cost. Air conditioning, like the automobile, will be brought within the means of all home owners. It will have taken its place among the normal conditions of civilized life."

◆

Steel Beer Barrell

When beer became legal the shortage of wooden beer barrels prompted the Motor Wheel Corporation of Lansing, Michigan, to design a steel barrel which has just gone into production for sale under the trade name Duo-Steel.

The Motor Wheel barrel matches the strength and insulating factors of the wooden container by being designed as a double-walled barrel, or a barrel within a barrel. The outer casing of the barrel follows the general lines of the conventionally shaped barrel, but the inner shell takes the form of practically a perfect oval or oblong spheroid. This shape in itself furnishes a high strength factor, but the



real major strength of the complete barrel results from contact points which are strategically located between the outer and inner shells.

Between the outer and inner barrel units generous air spaces of correct volume provides insulation. Since both the inner and outer shells are complete units and absolutely air tight, it follows that the insulation spaces are likewise air tight.

One of the difficulties was the problem of bonding pitch to the interior of the barrel. Motor Wheel Corporation has evolved a method of finishing the interier surface in such a manner as to provide a perfect base for the pitch to be applied.

News Items . . . . . .

Steffner Joins Miles

Announcement is made that Eddie Steffner has gone with the Miles Furnace Fan Division of the Henry Furnace & Foundry Company, Cleveland, Ohio, as chief engineer. This arrangement completes the old furnace fan combination formerly of the Warm Air Furnace Fan Company.

"Slide Rule Eddie" is widely known to hundreds of heating men through his former connection; and to those

who took the furnace engineering course he conducted for so many years.

It is announced that Eddie's assistance will be available to dealers through the courtesy of the Miles Furnace Fan Division of the Henry Furnace & Foundry Company. This service is cheerfully donated for the good of the warm air furnace industry as a whole.

◆

Zinc Institute Displays

Recognizing the unusually favorable opportunity now presented for building material promotion in the farm field, the Zinc Institute has arranged exhibits of "Seal of Quality" Heavy-Coated Galvanized Sheets at the following:

Illinois State Fair, Springfield, Ill., Aug. 19-26. Space No. 6, Exposition Building.

Wisconsin State Fair, Milwaukee, Wis., Aug. 27-Sept. 2. Space No. 342 HE, Industrial Building.

Eastern States Exposition, Springfield, Mass., Sept. 17-23. Space No. 63, Industrial Arts Building.

State Fair of Texas, Dallas, Texas, Oct. 7-22. Space to be announced.

All who are interested in the distribution or use of galvanized roofing are urged to visit these exhibits and obtain full information from the Institute's representatives.

◆

MW to Hold Sales Meet in East

Fall sales plans for the Heater Division of Motor Wheel Corporation will include an extensive series of sales meetings, to be held in the East during the month of September. M. F. Cotes, Manager for the Heater Division, will conduct the various meets, outlining Fall and Winter sales plans before dealer and distributor groups in New England, New Jersey, New York and Pennsylvania. A similar series of meetings was recently held in the Middle West territory.

News Items . . . . . .

Construction Increases

Construction contracts of all descriptions awarded in the 37 states east of the Rocky Mountains during June totaled $103,255,400, according to F. W. Dodge Corporation. This was a gain of almost 34 per cent over the total of $77,171,700 shown for May. During June of last year the contract volume amounted to $113,075,000.

Breaking the June, 1933 contract total down, the Dodge organization indicates a total of $74,434,400 for privately-financed undertakings as distinguished from the total of $28,821,000 for publicly financed work. Thus the total of private work during June compares with only $53,487,500 for May and $48,806,800 in June, 1932.

Showing a further distribution of the June awards as between major structural classifications, the current report gives a June total of $27,793,200 for residential building as against $26,519,700 for May, and only $23,116,200 for June, 1932: non-residential building awards during June amounted to $51,024,400 as compared with $31,639,400 for May and $39,812,600 for June, 1932; awards for public works and public utilities during June, 1933, totaled $24,437,800 as against $19,012,600 for May and $50,146,200 for June of last year.

◆

How Farm Homes Are Heated

A Committee from last year's national conference on Home Ownership reported a survey of about 1,900 farm homes in different parts of the country. The following is from this report—

Region	Per cent of total number heated by Stoves and Fireplaces	Central Heating Plants
New England-New York	70.2	29.8
Central East	86.3	13.7
Appalachian-Ozark Highlands	96.8	3.2
Tobacco-Bluegrass	93.9	6.1
Cotton Belt	98.5	1.5
Corn Belt	69.6	30.4
Northern Dairy	68.2	31.8
Great Plains	72.7	27.3
Great Basin	87.9	12.1

◆

Building Costs Rising

"The rising trend of material prices," as reported by the Dun and Bradstreet survey, "has placed the average cost of building definitely above that of this period last year. The increase is estimated conservatively at 10 per cent. Lumber has advanced at least 33⅓ per cent since April, while roofing materials are up fully 25 per cent. Plumbing fixtures, pipes and fittings are up 30 per cent, radiators and boilers 25 per cent, and brass goods 20 per cent. Tile has advanced about 10 per cent and plaster from $3 to $4 a ton. While more labor is employed, and the number is being increased weekly, wage scales still are low, but are expected to advance as soon as the code of practice will have become operative in this industry. In some branches, skilled workmen are moving for a higher scale, in prospect of renewal of expiring wage agreements."

◆

General Air Conditioning Co., Inc.

General Air Conditioning Company, Inc., has been organized with main office at 155 East 44th street, New York City, and offers engineering service in the design and installation of industrial air conditioning, air cooling and drying systems.

New Literature . . . .

Peerless Repair Catalogue

The Peerless Foundry Company, Indianapolis, Ind., has just issued a new stove repair parts catalogue which is said to be an innovation among literature of its kind.

In the catalogue each item is quoted at a list price which enables the dealer to determine his prices on parts before ordering.

The catalogue is very complete and contains 118 pages filled with specifications. The name of the catalogue is "A Price List of Repair Products to Fit All Makes of Stoves and Ranges" and in writing for a copy this name should be used to identify the new catalogue.

In addition to stove repair parts the catalogue also lists fire pot dimensions for matching these sections, gas hot plates, laundry stoves, coal chutes, ash dumps, clean out doors and frames, stove pipe and elbows and stove accessories.

Free copies may be obtained from the company.

◆

Gas Furnace Lighter

Cicero Furnace Co., 5020 W. 25th St., Cicero, Ill., has issued a single leaflet describing the "Giant Fire Lighter." This is a double-jet arrangement, attached to gas outlet. The jets are lit and the lighter placed in the ash pit of the furnace with valve opened wide. Fuel may thus be ignited without the use of wood. About fifteen minutes' time is required to start a fire using the lighter.

◆

Mechanical Code Data Sheets

Walter J. Ottinger, M. E., 1893 East 55th St., Cleveland, heating and air conditioning engineer, has prepared a set of data sheets designed to make the application of the mechanical code easy and accurate.

"The code," says Mr. Ottinger, "is an extremely convenient method of calculating houses of from 5 to 10 rooms. The code provides a method sufficiently sound to satisfy the technical man, sufficiently accurate for the engineer and sufficiently practical for the contractor.

"The data sheets are designed to make it easy to calculate Winter air conditioning jobs of average size without having to use any scratch paper. The sheets are divided into sections with each section arranged so that progressive calculations according to the recommendations of the code may be followed."

Information on the cost of the sheets may be obtained from Mr. Ottinger.

◆

New Book on Oil Costs

"Dollars from Empty Coal Bins" is a new book published for prospective oil burner dealers by the Cleveland Steel Products Corporation, manufacturers of the Toridheet oil burner.

A comprehensive survey of market conditions made in response to requests from dealers is incorporated in the new book.

"Dollars from Empty Coal Bins" enables the dealer to study oil burner profit possibilities without experimenting. Copies of the book may be obtained from the manufacturers.

New Literature . . . .

Miles Conditioner Leaflet

The Miles Junior Air Conditioner, mentioned last month in our News Items, is ready for the market. Full information on the design, operation, cost of the unit has been prepared in the form of a leaflet. This can be obtained by writing the Miles Furnace Fan Division of the Henry Furnace and Foundry Co., Cleveland, Ohio.

The leaflet points out the importance of air conditioning, particularly clean, circulated air. The cleaning action of the conditioner is explained for the layman. The importance of circulation is also emphasized. Information on the cost of operation, design and advantages of conditioning are set forth.

Copies of the leaflet may be obtained from the company.

◆

Ryerson Publishes New Steel Book

Joseph T. Ryerson & Son, Inc., have just published a larger and much more complete Stock List than any of their previous issues. The new book runs over 200 pages and includes complete information and data on practically every kind of steel that is made, including all special grades of Cold Finished Steels, Alloy Steels, Stainless Steels, etc., also brass, copper and other non-ferrous metals.

Copies will be sent to all those requesting on their business letterhead.

◆

Z and H Press Bulletin

Zeh and Hahnemann Co., 182 Vanderpool St., Newark, N. J., have issued a bulletin describing the company's line of percussion power presses. The bulletin is so arranged that each type of press is accompanied on the same page with full data covering sizes, weights, and full dimensions for all the presses in that series.

Copies of the bulletin can be obtained from the company.

◆

Servicing Booklets

Henry Brown, distributor of the Henry Brown Electric Furnace Cleaner, Asheville, N. C., has prepared a series of three booklets dealing with servicing a warm air furnace, steam or hot water boilers and chimneys.

These booklets are published in the form of mimeograph sheets between covers. The text material is arranged so that anyone of the booklets could be handed to a mechanic and full information on how to do the job will be in his hands.

For example, in the furnace manual the cleaning operation is arranged step by step and every detail, down to the smallest item like handling warped dampers, is discussed. Full information is given on the easiest, fastest and most profitable ways to use a furnace cleaner.

Contractors interested in manuals of this type can get full information by writing Henry Brown, Asheville, N. C.

◆

Humidity Instruments

Bulletin No. 108 describes direct-reading precision Hygrometers, Recorders, and other simple instruments used for determining accurately true air conditions; issued by the Amthor Testing Instrument Co. Inc., Brooklyn, N. Y.

New Literature . . . .

Independent Register Catalogues

The Independent Register and Mfg. Co., Cleveland, Ohio, has issued two new bulletins—33FA and 33 for distribution in the trade.

Bulletin 33FA is devoted to registers for forced air. The various registers are itemized and shown in photographs. In addition, details of construction and methods of fastening are indicated. Tables accompany the listings showing sizes, finishes, prices and other necessary information. Two pages are devoted to special designs. Another important section gives capacities according to velocities for all the registers.

Bulletin 33 lists gravity type registers and grilles, both floor and wall types and gives complete information on sizes, finishes and prices.

Copies of either or both catalogues may be obtained from the company.

◆

Welding Book

Universal Power Corporation, manufacturers of Arc Welders, located at 1719 Clarkstone Road, Cleveland, Ohio, have recently published Bulletin 1056 on their modern shunt inductor Welder Motor-Generator sets and Bulletin 1057 on arc welding accessories and clothing. Copies of the publications may be obtained from the company.

◆

Chimney Draft

The Hays Corp., Michigan City, Ind., will mail to any interested contractor their bulletin 2005 covering the general subject of draft as found in oil burner installations.

The bulletin consists of reprinted articles from a series covering the importance of draft in making oil burner installations function satisfactorily. The general arrangement of material is—Draft, What It Is and Its Importance in Oil Burner Installations; Instruments for Draft Measurement; How to Use Draft Gauges; Field Experiences; New Light on Draft Problems.

In detail these chapters explain all the intricacies of draft, its investigation and control and how to know what draft is being secured.

The articles are illustrated by drawings and the text is so written that anyone with experience in draft can understand the explanations.

CLASSIFIED ADVERTISING

4 cents for each word including heading and address. Count seven words for keyed address. Minimum $1.00 for each insertion. One inch $3.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

SITUATIONS OPEN

WANTED

Manufacturers' Agents or Sales Engineers with forced air heating and air conditioning experience to handle a definite territory on commission basis on a line of equipment which is showing increased sales. Repeat orders indicating customer satisfaction. Give complete experiences and references in first letter. Address Key 247 "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

WANTED: METAL WORKER—AGE 40—Good inside and outside workman, for blowpipe, skylight, ventilation, shop job work, roofing, etc., Hustler and willing with knowledge of all branches. Address H. T. Klugel, P. O. Box 123, North Emporia, Va.

WANTED—A SHEET METAL AND roofing estimator. Must be thoroughly experienced in all branches of the trade and a good salesman. Compensation will be based on a share of the profits basis. Address Key 248, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

SITUATIONS WANTED

SITUATION WANTED—HAVE HAD 28 years' experience as tinner and plumber. Am qualified to do repairing and work in the following lines: auto radiator repairing, putting up steel ceilings, pump and windmill repairing, steam and hot water work, installing radios, and any kind of a mechanical job that comes in a shop. Can give good references. Address F. C. Blewett, Boscobel, Wis.

SITUATION WANTED—LIVE WIRE successful sales engineer and production manager. 25 years' experience in exhaust fans, dust collecting, ventilating systems, pneumatic conveying, grain handling, general sheet metal work, production planning, cost cutting, etc. American, energetic, temperate, dependable and well equipped to obtain maximum results by modern methods. Address Key 250, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

SITUATION WANTED—SHEET METAL man with several years' experience in building furnace fans and air washers. Would like to connect up with a good furnace concern or sheet metal manufacturing company. Address Key 249, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

SITUATION WANTED—A FIRST CLASS tinner and plumber, steam and hot water fitter. Can do all kinds of repair work, radiator and pump repairing. Wants to rent or run shop on commission. Address Key 238, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

WANTED, SITUATION: TRAVELING Chicago area. Sheet Metals and Metal products, or manufacturers' agent, or inside work. Wm. C. Allen, 566 Newton Ave., Glen Ellyn, Ill. Phone 528.

SITUATION WANTED BY A FIRST class sheet metal worker and warm air furnace man. I can make cornices, skylights, ventilation of all kinds. Especially good at job work; also a good roofer, slate, tile, tin and built-up roofing. Can do some plumbing. Can read blue prints and draft all kinds of patterns. I can also furnish references. Edward Collins, 82 Currier St., N. E., Atlanta, Georgia.

Situation Wanted

Furnace salesman and heating engineer of broad acquaintance and experience in the sale of all types of gravity, forced air, coal and gas fired and trunk-line systems, desires connection with progressive manufacturer. Will consider any territory. Thirty-nine years of age, married, a college education, served eight years as Ohio representative for one of the largest furnace manufacturers, unusual record of sales accomplishment, A-1 references. Address Key 244, "American Artisan," 1900 Prairie Ave., Chicago, Ill.

SITUATION WANTED—BY ALL around sheet metal worker. Have had twenty years' experience at the trade. Can estimate layout and erect most any job that comes in the average shop. Can also read blue prints and am experienced in hot air and air conditioning work. Am also an expert oxyacetylene welder on all metals. Job must be steady the year around. Address Key 251, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

FOR SALE

REGISTERS

Bargain Bargain

An overstock of registers is inducing us to dispose of a large quantity of Base Board Registers at an unbelievably low price. Write for prices and sizes. All subject to prior sale. The Williamson Heater Co. 337 W. 5th Street, Cincinnati, Ohio.

FOR SALE—TWO THOUSAND DOLLAR stock hardware, main corner, rent $35.00; store, tin-shop and garage. Mrs. D. Kolber, Mokena, Illinois.

FOR SALE—ONE MAPLEWOOD ELbow machine complete with jiggs and cutters; also complete metal ceiling manufacturing equipment, including hammers and dies. Address Key 246, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

FOR SALE—ONE COMPLETE SET OF tinner's tools and stock, with or without shop. Residence and garage. Business has been established eleven years. Address Key 236, "American Artisan," 1900 Prairie Avenue, Chicago, Illinois.

MISCELLANEOUS

Patents and Trade Marks
Philip V. W. Peck
Barrister Bldg., Washington, D. C.

MAILING LISTS

Pave the way to more sales with actual names and addresses of Live prospects.

Get them from the original compilers of basic list information—up to date—accurate—guaranteed.

Tell us about your business. We'll help you find the prospects. No obligation for consultation service.

60 page Reference Book and Mailing LIST CATALOG

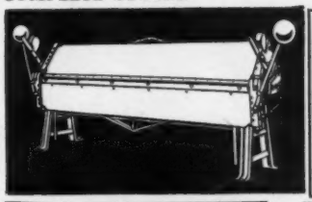
Gives counts and prices on 8,000 lines of business. Shows you how to get special lists by territories and line of business. Auto lists of all kinds.
Shows you how to use the mails to sell your products and services. Write today.

R. L. POLK & CO.
Polk Bldg.—Detroit, Mich.
Branches in Principal Cities
World's Largest City Directory Publishers

Mailing List Compilers. Business Statistics. Producers of Direct Mail Advertising.

SHEET METAL MACHINERY

COMPLETE STOCKS — HAND AND POWER — NEW AND USED



REBUILT BARGAINS

Brakes Chgo. Steel 3′ 16; 5′ 18; 6′ 14; 8′ 14; 8′ 16; 8′ 18; 10′ 18; 10′ 16; 10′ 14 ga.
8′ Steel Foot Shear $150.
42″ 95% Foot Shear $100.
36″ Nia. Foot Shear $65.
36″ Pexto 20 ga. Groover $67.50.
30″ Pexto Bar Folder $25.
Hulbert Dble. Seamer 36″ $30.
16 ga. Nia. R&C Shear $125.
36″ 16 ga. Nia. B.G. Slip Roll $40.
Beader 12″ thr. Hvy. Duty $27.50.
Kick Presses—$15 to $35.
8′ Chgo. Steel Press Brake M.D.
30″x2″ Plain Roll $15.
8′ Bertsch Slip Roll $200.
Serpentine Thr. Shears 18 to 10 ga. Hand & Power.
Power Shears 36″ 18 ; 6′ 14; 10′ 14; 10′ 10; 10′3/16; 5′ 10; 52″ 16 ga. 8′ 18.
12 ga. Quickwork Shear 30″ thr.
Punch Presses, all sizes & types.
Power Slip Rolls 42″ 110 ga.; 50″ ¼; 10′ 10 ga.; 10′ ⅜″.

"Draw on America's Most Complete Stock"

ROLLS—SHEARS—BRAKES—SPOT WELDERS —PUNCH PRESSES—PRESS BRAKES—FOLDERS—DRILLS—HAND MACHINES—STAKES

INTERSTATE MACHINERY CO.
130 S. CLINTON ST., CHICAGO

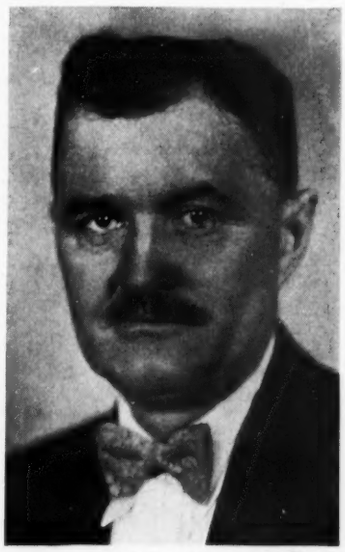
Index to Advertisers

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in alternate issues is marked with an asterisk.

September, 1933

For Complete Lists of Furnace, Sheet Metal and Air Conditioning Products and Sources of Supply Consult AMERICAN ARTISAN ANNUAL DIRECTORY NUMBER

ZIEBARTH GOES TO BAT—



MR. OTTO W. ZIEBARTH
Madison, Wisc.

and gives his opinion on the BRUNETT WARM AIR HEATING SYSTEM

READ THE LETTER TO HIS PROSPECTS

I like to sell furnaces. But I think I have established here in Madison, over a period of years, a reputation for fair dealing that is more precious to me than the sale of a few more heating plants.

For one thing, I try never to poison anyone's mind against another make of furnace. I know what my furnace is and what it will do, and I'm ready to tell you about that. I have always done my best to encourage intelligent buying of heating plants by showing purchasers how to protect their own interests.

I refuse to be a tricky trader. I won't pretend to offer you something for nothing -- it wouldn't fool you because you know it can't be done. If I should let a purchaser hammer down my price, I would have to take it out of the furnace...install a cheapened job, wouldn't I. And if you've ever tried to get heat out of a bad furnace you know that wouldn't be a bargain. The result would be unsatisfactory performance. Instead of having a booster, I'd have a knocker. And I can't afford that. I've installed upwards of 500 heating plants in and around Madison in my time, and I feel sure that every one of them has proven by performance to be worth every cent it cost.

I refuse to keep dinning in your ears that the Brunett heating plant is the best, most economical one there is. I wouldn't be handling it if I were not convinced that it is. I leave actual scientific university tests to prove its value...and I challenge any other furnace, at any price, to meet the same tests nearly as well.

After all, when you are investing in a heating plant, where is the expense involved? Isn't a heating plant that has proven itself by actual tests to be more than 91% efficient in operation more economical at any price than one which is only 50% efficient?

On this basis I invite your business -- you will pay me a fair price, and I will give you your money's worth in permanent heating economy and satisfaction.

Sincerely yours,
Otto W. Ziebarth

Mr. Ziebarth got in on the "Ground Floor"— YOU CAN TOO

The BRUNETT "DUAL" Warm Air Heating System can be sold complete or the patented Heat Utilizer separately.

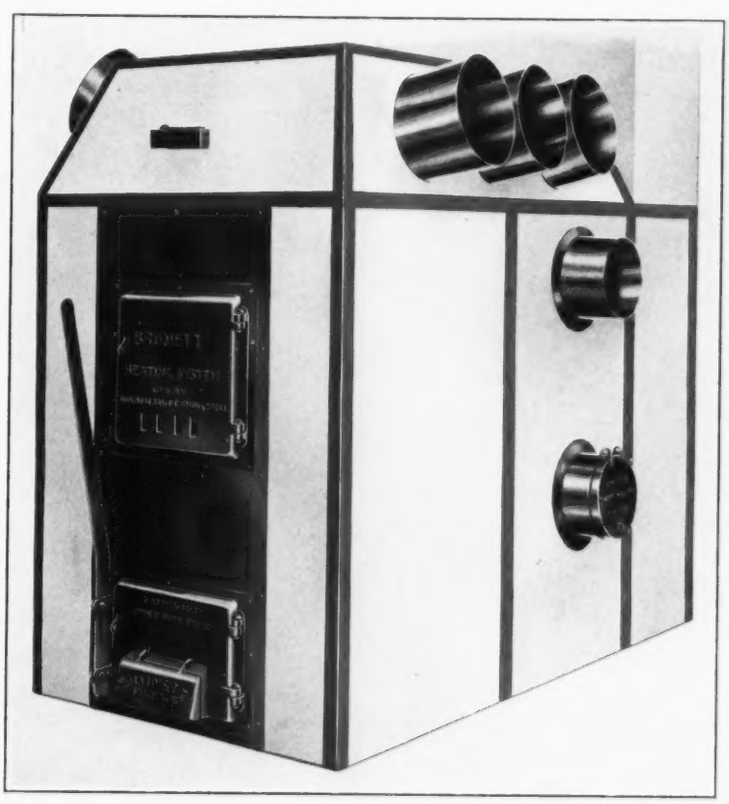
Write Today for Full Particulars

BROWN SHEET IRON & STEEL COMPANY

-- PIONEER WELDERS OF THE NORTHWEST --

Builders of the World's Largest One Unit Warm Air Furnaces

964 BERRY AVENUE, ST. PAUL, MINN.



True Talks
with successful sheet metal men

SERIES No. 3 **NUMBER 5**

BLAZES WAY TO VOLUME AND PROFITS WITH MONEL METAL

N. Wagner & Company One of First to Push Monel Metal in Chicago Territory

Mr. N. Wagner, head of N. Wagner & Company, and his son, in front of their three story building at 1641 No. Park Avenue, Chicago, Illinois.

FOURTEEN YEARS is a short time to build up such a thriving business as N. Wagner & Company of Chicago has today. But Mr. N. Wagner, head and driving force of the company, has never been content to jog along and wait for things to happen.

Right at the start, before the remarkable characteristics and infinitely varied uses of Monel Metal were so widely known as they are now, Mr. Wagner had the vision to see the great future in store for this metal.

Monel Metal container made by N. Wagner & Company.

Whenever he came across a job calling for steel-like strength, absolute immunity against rust, resistance to corrosion and attractive appearance he didn't throw up his hands and say "No metal combines all those virtues!" No, he simply said "Monel Metal."

Monel Metal cabinet used for storing brushes in Bowman Dairy Co., River Forest, Ill., built by N. Wagner & Co.

And he was right. Monel Metal invariably filled the bill... filled it so perfectly that not only did Monel Metal win a growing reputation in that territory, but N. Wagner & Company's reputation grew, too. Several nice Monel Metal contracts began to fall into the company's lap, solely because it knew that fine workmanship and perfect design are wasted unless the material is right.

To Wagner craftsmen Monel Metal is an ideal working material. It welds perfectly and takes a glowing silvery finish that is something to be proud of.

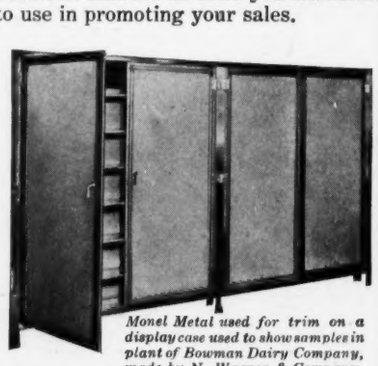
So in Chicago today there are numerous concerns... chemical plants, industrial plants, dairies, restaurants, and homes as well... that boast of silvery bright Monel Metal equipment from the Wagner workshops.

And the Wagner business continues to grow. For the Company realizes that the market for Monel Metal, substantial and profitable though it has been, is hardly touched. There are endless places where Monel Metal would be more satisfactory than the other metals now employed.

Therefore N. Wagner & Company continues to boost Monel Metal, because it *pays* to boost it... in profits, satisfied customers and repeat orders. This concern doesn't *wait* for Monel Metal jobs. It finds that a sure way to profits is to go out and *suggest* uses for Monel Metal.

BELOW: *Monel Metal cover for a milk bottle rack in Bowman Dairy Co. Plant, made by N. Wagner & Company.*

Write and ask us for suggestions on using Monel Metal to land jobs for your business. And let us send you literature to use in promoting your sales.



Monel Metal used for trim on a display case used to show samples in plant of Bowman Dairy Company, made by N. Wagner & Company.

INCO MONEL METAL

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.